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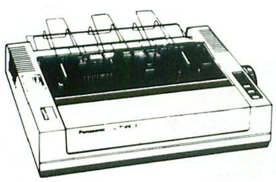
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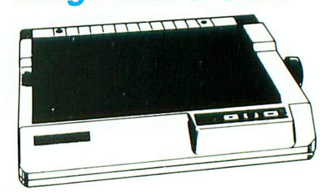
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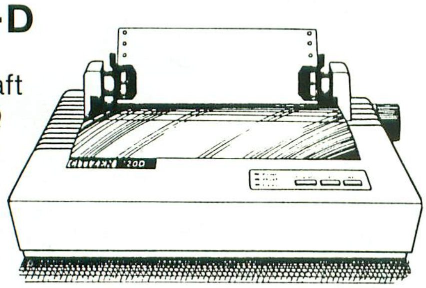


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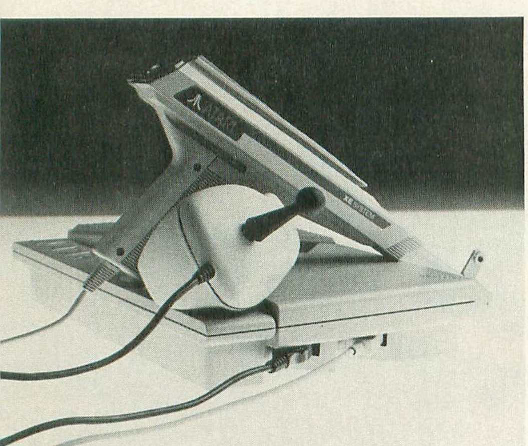
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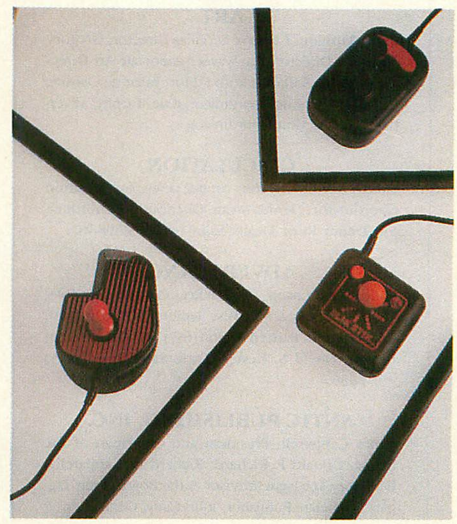
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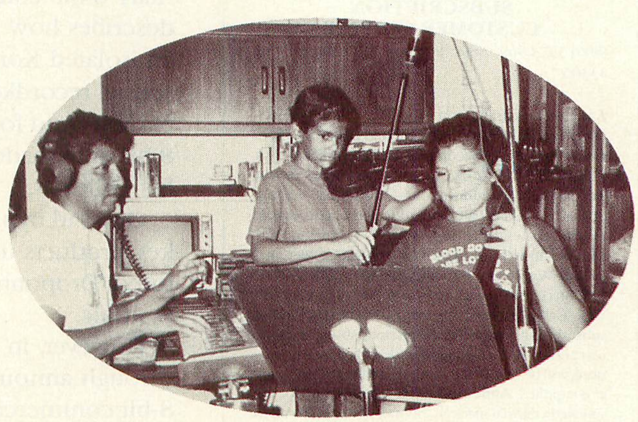
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SOFTWARE LIBRARY

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Atari String Quartet. Page 47

Super 8-Bit Contest Winners



Antic editors just completed the grueling but enjoyable task of digging through an avalanche of outstanding 8-bit software submissions—many of which you'll be seeing in upcoming issues throughout 1989.

Winner of the Programming Grand Prize in the Super 8-Bit Contest is *Personal Pocket Calendar.* This useful program for making mini appointment calendars arrived about midway through the contest period and we rushed it into print—as the Feature Application in last month's **Antic**. (All programs accepted during the first part of 1988 were eligible for the contest.) Author Jim Hodny of Newfolden, Minnesota wins a megabyte Multi I/O from ICD.

Appearing in *this* issue are two powerful runner-up programs: *Newsroom Converter,* by John French, connects new pathways between standard Atari graphics software and the Print Shop and Newsroom page designers. *Semaphore,* by Howie Wishart, puts a little man onscreen waving flags so you can learn to read semaphore signal messages.

Our final runner-up winner is *Top Banner!,* the versatile banner printer by Jacob Donham and Lee Brilliant from the July 1988 **Antic**. Each winning runner-up entry receives a pair of prizes from ICD—an R-Time 8 clock/calendar cartridge and the SpartaDOS Construction Set disk.

All four winners of the Feature Article Division of the Super 8-Bit Contest are in this issue. Prizes are the same as for the Programming Division.

The 1988 Grand Prize Article is *Atari at the Gazette,* Robert McLean's in-depth look at how a suburban weekly newspaper in a competitive market stays cost-effective with XL/XE power—including an XE Game System equipped with an extra-long cable for its detachable keyboard.

The runner-up articles cover a fascinating variety of real-life uses of upgraded Atari 8-bit computers. Air Force Staff Sergeant Chester Cox entertainingly describes how his memory-enhanced system kept the paperwork moving at an isolated Korean airbase when red tape and crashes paralyzed official personnel recordkeeping. Rev. Earl Smith calls the Atari a "godsend" for his busy church. And former showroom violinist Joe Davis explains how MIDI on the 8-bit Atari made possible his longtime dream of playing in a string quartet with his children.

One sad byproduct of the contest articles was **Antic's** discovery that some key products used so creatively by the authors are no longer being manufactured. Dropouts are Electronic Arts' PaperClip plus Broderbund's SynFile + and SynCalc.

However, in next month's **Antic** you can expect to see a surprising breakthrough announcement about the return to availability of many outstanding 8-bit commercial programs that were off the market. If you have been looking unsuccessfully for top 8-bit Atari software, don't miss the January 1989 **Antic.**

Nat Friedland

Nat Friedland
Editor, **Antic**

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DISABLE BASIC

While in BASIC on an Atari XL or XE, if you type POKE 1016,1 and press [RETURN] and then press [RESET], you can disable BASIC. The computer will perform a warmstart, you'll be returned to DOS and if you try to return to BASIC, you'll be told there's no cartridge present.

Richard Durazzo
Panama

NUMBER ROUTINES

I find *Number Print* (**Antic**, August 1988) very useful, but too long. I often use the following one-line subroutine:

```
500 B=INT(A*100+.5)/100:A$(3)=STR$(INT(B)):X=LEN(A$):A$(3)=STR$(B):POSITION 35-X,Y:? A$:Y=Y+1:RETURN
```

To see this work, put it in the following program:

```
200 GRAPHICS 0:DIM A$(20):A$="$":Y=0
210 TRAP 600
215 INPUT A:GOSUB 500:TOTAL=TOTAL+VAL(A$(3)):GOTO 215
600 POSITION 15,Y:? "+----------------------":Y=Y+1:A=TOTAL:GOSUB 500:POSITION 28-X,Y-1:? "TOTAL"
```

While on the subject of numbers, any number such that N<256 is converted to the nearest integer this way:

```
I=ASC(CHR$(N))
```

For N>255, this will give the *low byte* of a number. Usually you'd use "I=N-INT (N/256)*256," but the above line works fine.

Another one-line subroutine I use often is a way to get inverse characters on a graphics screen when using a special font. The font's address is always determined this way: POKE 756,(*hi-byte* only, *lo-byte*=0); I use the following subroutine to invert the character set from the value it has at that time:

```
A=PEEK(756)*256:FOR I=0 TO 1023:POKE A+I,255-PEEK(A+I):NEXT I:RETURN
```

Finally, your Tech Tip for adding 32 to a Graphics mode has opened a whole new field for me. As I switch between 0 and 8+32, I can adapt my listing and see the results. I have also spotted the possibility of a tutorial, switching between picture input and text, demanding a pupil response.

W. Walraven
Breda, Netherlands

HIGH SCORE FROM HELL

I took the Highscore program you reprinted from Page 6 magazine and changed it to fit the program Escape from Hell! Omit Line 9 in the listing below if you want the all-time high score on disk. Omit lines 1-3 and 2031-2034 if you want the high score to appear each time you boot the program or press [RESET].

```
1 OPEN #7,4,0,"D:HIGHSC"
2 INPUT #7,HS
3 CLOSE #7
9 HS=0
2026 IF SC<HS THEN 2050
2027 IF HS<SC THEN HS=SC
2028 GRAPHICS 0:POKE 710,66:POKE 712,66:POKE 709,2
2029 ? :? :? :"9 HS=";HS
2030 ? :? :? :"CONT"
2031 POSITION 2,0:POKE 842,13:STOP
2032 OPEN #7,8,0,"D:HIGHSC"
2033 PRINT #7,HS
2034 CLOSE #7
2050 GOTO 9000
9005 ? ," HIGH SCORE=";HS
9006 ? ," YOUR SCORE=";SC
9007 ? " PRESS THE TRIGGER TO BEGIN ";
```

Finally, I liked Escape From Hell! (**Antic**, June 1988) and Sorcerer's Apprentice (September 1988). They're the first decent BASIC games I've seen in a long time that use Player/Missile graphics.

Andy Floyd
Minerva, OH

The answer to question 1 is yes—you want a program that reconstructs the Variable Name Table. It will restore everything except original variable names. You can get this kind of program from a BBS or users group.

As for questions 2 and 3, we haven't heard of anything that will do what you want.—ANTIC ED

BASIC QUESTIONS

Here are a few questions:

1. Is there a program that reads unlistable or unloadable SAVEd BASIC programs and creates listings that can be printed or LISTed to disk?

2. Is it possible to digitize sound off the program recorder? Has anyone written a program for this?

3. Is there any Print Shop-style software for the 1020 plotter?

SEE JANE PROGRAM

Some time ago I read of a "primer" being available for Atari owners who knew no more about their Ataris than how to plug them in. Where do I find such a primer?

Walter Schaut
St. Mary's, PA

The February 1988 ***Antic*** *featured the* First-Time Atari Users Handbook. *Also the* New Owners Column *began in the March 1986* ***Antic*** *and ran for most of the next 16 months. Probably the best single source of overall information for the advanced beginner is:* Your Atari Computer *by Lon Poole, Osborne/McGraw-Hill, 2600 Tenth Street, Berkeley, CA 94710. (415) 548-2805. $17.95, 474 pages.*—ANTIC ED

DAISY-DOT REVIEW

I would like to thank Charles Cherry and the rest of the **Antic** staff for publishing the favorable review of my Daisy-Dot II program in the July 1988 issue. Support like **Antic**'s review and the user interest it generated encourage me to continue programming for the public domain. Thanks again.

Roy Goldman
Denver, CO

SERVICE DEMANDED

The review of Daisy-Dot II in the July 1988 issue of **Antic** was so excellent that I immediately sent a money order to Roy Goldman. The response was rapid indeed. In about five days, I received a postcard saying, "Due to vacation abroad, I won't be able to attend to your letter until the end of August. I apologize for any inconvenience this may cause you."

I am aware that your magazine does not have control over its advertisers. However, I think it would be good for you to know that I will no longer purchase anything advertised in your magazine.

D.L.
Phoenix, AZ

Frankly, we're mystified by your reasoning that because a public domain program reviewed *in **Antic** wasn't immediately available due to the author taking a vacation, this is somehow the fault of **Antic** advertisers. It seems to ANTIC ED that Roy went above and beyond the call of duty in having that postcard sent for a $10 sale. Roy does not program for a living. He does it as a hobby and as a service to the Atari community. Like you or anyone else, he's entitled to some time off. As near as we can tell, your attitude is only hurting yourself. Not only that, try finding some decent IBM software for only $10.*—ANTIC ED

WANTS KOALA

When I try to boot my Micro Illustrator disk for my KoalaPad, nothing happens. I called three Atari dealers in the Detroit area and they said they haven't seen a KoalaPad in years.

Gary Bayse
Mt. Clemens, MI

*Unfortunately, Koala no longer makes an Atari graphics tablet. Look into the Suncom Animation Station (reviewed in **Antic**, November 1987). It's a Koala-compatible graphics tablet and features a version of Baudville's Blazing Paddles software (reviewed January 1987).*—ANTIC ED

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

Product Review

BIBO-DOS

Atari 8-bit computers are alive and well in Europe. Many new products are introduced every month for the "little" Ataris, as the West Germans refer to the 8-bit line. **BIBO-DOS**, released in July 1987, is a powerful disk operating system with important new functions that standard Atari DOS doesn't have.

I tested BIBO-DOS on an Atari 130XE computer with an XF551 disk drive, a "vanilla" 1050 and a U.S. Doubler-equipped 1050. When you enter BIBO-DOS, you will see the DOS name and version number across the top of the screen and menu items A through N. In Version 5.2, you get Normal and Fast modes. I was able to measure a speed-up of about 20% with the U.S. Doubler.

BIBO-DOS has a status line telling you which drives are active, how many file buffers are available and the size of your RAMdisk (64K to 256K).

You can get a normal disk directory by pressing the drive number key, or a "special" directory by pressing [SHIFT] with the number key. The special directory shows all filenames on the disk, with codes indicating erased files and files with errors (such as open for write). You don't need to press [RETURN] after making your selections.

BIBO-DOS is made up of a pair of files called BDOS.SYS and BDUP.SYS. According to the 25-page manual, BIBO-DOS is fully compatible with Atari DOS 2.0 and 2.5.

Selection C (file copy) now works with either a single drive or multiple drives. It also copies all files except BDOS.SYS when you specify only a drive number or wild cards—unlike Atari DOS 2.0 and 2.5 which require specific input to copy AUTORUN.SYS and won't copy DUP.SYS at all.

The Write DOS command (H) lets you reconfigure your system. For a new RAMdisk size, switch RAMdisk and keyboard buffer on or off, keep RAMdisk files or reformat RAM on reboot. You can also choose to write or not write the BDUP.SYS package.

Selection I (Format Disk) formats any properly equipped drive in single, medium, or double densities, or just clears all files without reformatting.

Selection J (Recover File) lets you undelete a file that you didn't really want to lose.

Selection N generates AUTORUN.SYS files.

Essentially, the BIBO-DOS menu has all the functions provided in external .COM files with DOS 2.5—no RAMDISK, DISKFIX or SETUP files taking up valuable disk space.

On the other hand, four very useful new files are added—a multi-density sector copier (SCOPY14), a multi-file copier (MFCOPY), a DOS 3.0 to DOS 2.x converter (CONV32D) and a RAMdisk tester (RDSKTEST).

On price, performance, compatibility and elegance, BIBO-DOS rates very high. All it lacks is subdirectory support, but that isn't necessarily serious with small-capacity (180K and under) disk drives. Version 6.0 of BIBO-DOS is supposed to support the full 360K capacity of the Atari XF551 disk drive. I'm eagerly awaiting.–RICH TIETJENS

About $12. Requires Atari 1050 disk drive. COMPY-SHOP OHG, Gneisenaustrasse 29, 4330 Muelheim/Ruhr, West Germany.

The menu looks like this:

1-8: Directory Dn	^ 1-8: Dir/Spezial
A: Disk Inhalt	H: Dos schreiben
B: Zum Basic/Modul	I: Formatieren
C: Datei kopieren	J: Zurueckholen
D: Datei loeschen	K: Binaer Save
E: Namen aendern	L: Binaer Load
F: Datei sichern	M: Start ab Adr.
G: Datei freigeben	N: Autorun Gener.

Antic Data-X, Revision B

More features, more power, more records. By **Jeffrey Summers**, M.D.

Antic Data-X *(May 1988), the fast, full-featured, easy-to-use database software that became one of the year's most popular Super Disk Bonuses gets some impressive new enhancements and fixes on this month's Antic Disk. These programs work on Atari XL/XE computers with at least 64K memory. RAM-disks are also supported.*—ANTIC ED)

I: DATA-X, REVISION B

I found a bug in the original *Antic Data-X* (Super Disk Bonus, May 1988) that limits the user to 255 records instead of the 1,000 which the database was supposed to handle. Revision B fixes this bug. Sorry, Revision A and Revision B data files are incompatible. But don't worry about losing your existing data—this new revision of Antic Data-X comes with an easy Conversion Program!

Revision B of Antic Data-X also adds the following improvements:

1. After a file is created, you automatically move to the MAIN menu, eliminating the time-consuming need to re-open the file.

2. If you made an error in designing your format when printing a file, you can abort the procedure before printing. Just press [0] when asked for the field to print. Then when the program prompts you to press [RETURN] for continuing the printing, instead press [ESC] to abort the print process.

Install Revision B by using the following series of DOS commands from the monthly Antic Disk: Format a new disk with DOS 2 or DOS 2.5, using command I. With DOS command H you'll next "Write DOS Files" to the newly formatted disk.

Don't worry about losing your original Data-X data—Revision B has an easy Conversion Program.

Now use the C command to copy RNTIMEB.OBJ and REVB.CTB from the Antic Disk to your new disk. Finally, use DOS command E to rename RNTIME.OBJ to AUTORUN.SYS and REVB.CTB to AUTORUN.CTB. Any future support programs, utilities, etc. that I release for Antic Data-X will be compatible with both versions of the program.*(An in-depth 2,500-word manual on how to use Antic Data-X is included on the May 1988 Antic Disk. Select HELP from the Side B menu.*—ANTIC ED)

II: DATA-X UTILITIES

As with any program, there are always features that could be added to Antic Data-X. This new Data-X Utilities program, DATAUTIL.BAS offers three powerful features that could not be included in the original software due to a lack of available memory. Now you can make major global changes in your databases—add or delete a field throughout an existing database, or change the length of a field throughout a database.

When you RUN the Data-X Utilities program, you'll be asked for the source and destination filenames. *Don't* use the same name for both files. Also, make sure there's enough room on your destination disk for the new file.

After the program opens the files successfully, you'll see the next menu. Here you can [A]dd or [D]elete fields, [C]hange field lengths, [L]ist the fields and their lengths, or [E]xit.

Adding a field is easy. After pressing [A] on the menu, you'll be asked for the name of the field, then its

length. The program then copies the old database from the source file to the destination file, adding your new field. When finished, the program returns you to the READY prompt.

Deleting a field requires that you know the order of the fields. If you aren't sure, press [L] to list the fields. Then press [D], at which time you'll be asked for the field number. The program will copy the database from the source to the destination file, eliminating all the data contained in the deleted field. If you select this option and then realize that either you don't want to delete a field or you want to look at the field list, press [RETURN] instead of a number, and the program will return you to the main menu.

To [C]hange the length of an existing field, you also need to know the number of that field. You'll be asked for the field number and then the new length. The program then creates a new database in the destination file using the data from the source file, either padding the changed field with spaces or deleting the trailing characters, depending on whether you want to expand or shrink the field size.

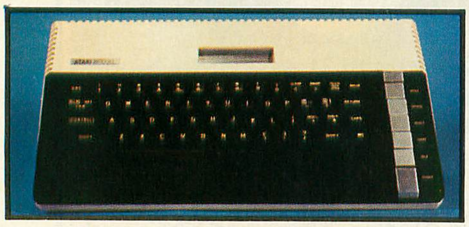
[E]xit simply quits the program without making database changes.

III: CONVERT

The Data-X Convert program, DATCON.BAS, converts Revision A files to Revision B format and vice versa. When you RUN the program, you'll be asked for the filename of the input database you want to convert. Enter the full name, including the device. Then you'll be prompted for the output filename—*don't* use the same filename as before. The program checks the input file to see which version of the database program created the file, then asks you to confirm the conversion. If you want to continue, press [Y] to convert the file. ▲

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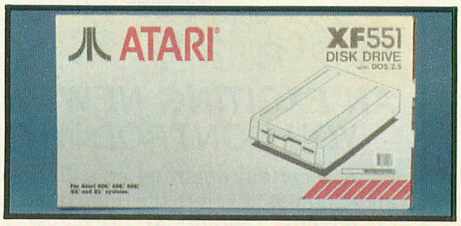
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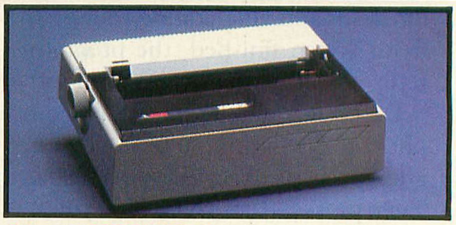
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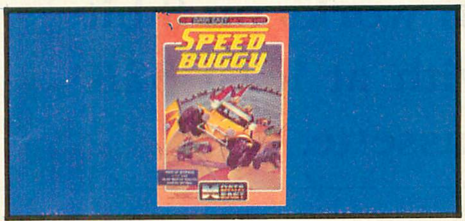
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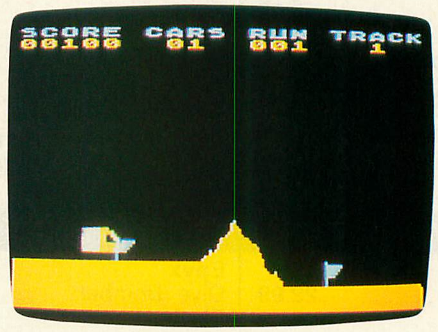
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E-Racer

Beat your best time, or get off the track. **By James Hague**



In this slick, fast racing game, you must keep beating your own best times in order to stay on the track. The BASIC program works on 8-bit Atari computers with at least 32K memory, disk or cassette.

In late 1979, as the disco boom faded, a small, independent team of scientists and engineers began one of the most ambitious (and probably useless) research projects ever attempted—construction of the world's fastest car. Finally, after many unfounded rumors (especially untrue was the one about the cheese dip) their work is complete. May I present the E-Racer.

Powered by a weird and highly classified fuel, the E-Racer is by far the most powerful and maneuverable land/air (yes, air) vehicle in existence. Unfortunately, it's also the most dangerous. Who's crazy enough to put this experimental vehicle through its paces? You, of course.

DRIVING LESSONS

You will be racing through terrain along a horizontally scrolling track. Exact layout depends on which of the four tracks you selected from the title screen, by pressing the [SELECT] key. The E-Racer can only travel on level ground—hitting mountains, cliffs, water, or anything that is not flat ground will result in the loss of a car. Be careful, you only have two cars.

The E-Racer can be operated at three speeds. Keeping the joystick centered selects Normal speed, holding it to the right is Fast and holding it to the left is Slow. There is no way to stop moving.

Pressing the joystick button while driving on level ground causes the E-Racer to jump vertically until you release the button, or until you hit an "invisible barrier" about half way up the screen. You will then slowly fall, landing safely if you touch down on level ground. You can shift the joystick left or right to change horizontal speed while jumping or falling. It is also perfectly okay to drive off cliffs or other high places as long as your E-Racer lands (all together now. . .) on level ground.

PREPARE YOURSELF

Type in Listing 1, ERACER.BAS, check it with TYPO II and SAVE a copy. If you have trouble with the spe-

cial characters in lines 7070-7080, 7140-7170, and 7260-7280, don't type them. Listing 2 will create them for you.

Type in Listing 2, check it with TYPO II and SAVE it. When you RUN Listing 2 it creates a file called LINES.LST. Merge this file with Listing 1 by typing LOAD "D:ERACER .BAS" and then ENTER "D:LINES .LST". (Cassette owners use CLOAD.) Remember to SAVE the completed program.

Don't be intimidated by all of the DATA starting at line 9000. It is much easier to type than first appears. There are no [CONTROL] characters and the only inverse character is uppercase Z. Piece of cake.

I used just about every trick in the book to speed up the action of E-Racer. Most users will probably find it hard to tell that the game is not programmed entirely in assembly language. E-Racer took me an unusually long time to program because I got hooked on taking breaks to whiz the little rocket car off a cliff or two.

PURPLE FLAGS

You're ready to play. Plug a joystick into the first port and RUN E-Racer. Press either [START] or the joystick button to roll out on the track you [SELECT] ed.

Scattered around each track are six purple flags. These flags are always in the same general positions on each track—but with some random variation each time you play. Note that once you start a game, the flags will remain in exactly the same positions for the duration of that game, no matter how many runs you make around that track.

To pick up a flag, simply touch it and, with a ding, that flag will be erased. Five of the six flags will be waving to the *right*. If you hit one of these five flags, you will receive 100 points. If you hit the one flag which is waving to the *left*, you will get 500 points. But it doesn't count as having picked up a flag (you'll see why this is important later).

Although the flags don't change position after you start a game, the flag waving to the left will be randomly chosen at the beginning of each run. So don't expect this 500-point flag to always be in the same place. Tracks are about three screens long.

After you reach the end of a track, you'll see your time for that run and the number of flags you collected. You'll also earn bonus points depending on your speed and how many runs you completed so far. Press the joystick button to continue racing.

Here's the important part: You will get another run on the same track only if (1.) your latest time is faster than the previous run *and* (2.) you collected more flags during this run than previously. You must always collect at least one flag, so if you complete your first run and collected any flags, you will always be given a second run. The one exception is that if you collected all five 100-point flags on your previous run, you must also collect all five on your current run.

The object of E-Racer is to complete as many runs as possible, each better than the last, racking up points as you go. As soon as you can't better your previous run, the game is over.

E-STRATEGY

If you manage to get the high score for a particular track, your score will be listed on the title screen. At the bottom of the title page you will be prompted to press [S] to save the high scores to disk. If you ever wish to reset the high score table to zero, just delete the file ERACER.HSC from your game disk. Note that the high score save feature is automatically disabled for cassette users.

E-Racer is a driving game that requires much practice. Ideally, on your first run you want to get a really slow time (15-20 seconds) and collect only one flag. On each succeeding run you should move a little faster and collect one more flag. Starting with the fifth run you're going to have to get all five flags and have a pretty quick time. It's not impossible though, I have managed to complete ten runs.

The E-Racer is by far the most powerful vehicle in existence —and the most dangerous.

Remember, you have two cars. So if you think your time isn't good enough, crash. It's much better to lose a car and start the run over than to have the game end.

Also note that it requires time to pick up a flag. You may want to grab the bonus flag on your first few runs just to make your time easier to beat on the next run. On higher runs, the bonus flag should be avoided at all costs.

Each track requires a strategy of its own. Track one is the easiest and I recommend racing on it before attempting the others. Take a few "Sunday drives" on each track to familiarize yourself with the scenery. Then strap yourself in, rev those engines, and start E-Racing!

James Hague, a junior in computer science and mathematics at the University of North Texas, has made many memorable appearances in ***Antic****. For example, who can forget* Uncle Henry's Nuclear Waste Dump *from the December 1986 issue.*

Listing on page 68

Antic Music Processor

Ultimate 8-bit song stylist. By Stephen Lashower

Antic Music Processor, this month's Super Disk Bonus, is a powerful assembly language program that takes full advantage of the impressive sound capabilities of the Atari 8-bit computer (minimum 48K memory required).

Featuring a user-friendly note entry system with an "intelligent" parser, Antic Music Processor can play four voices over a range of 5 1/2 octaves. Songs with more than 10,000 notes can be entered quickly and easily, by anyone who knows how to read sheet music. And because Antic Music Processor is set up like a spreadsheet, any part of a song can be located within seconds.

Best of all, thousands of song files from the popular public domain program Advanced Music System II are instantly compatible with Antic Music Processor. An included BASIC utility converts Advanced Music System files into Antic Music Processor format.

SONG CHALLENGE

Antic Music Processor is the easiest handling high-powered Atari music software ever published by this magazine. We challenge our monthly disk users to come up with a song file that shows off the entire range of features in this software. Winning songs will appear on the June 1989 Antic Disk. The programmer of the best song will win an Antic Software product from The Catalog. Runner-up winners will receive a copy of the June 1989 disk issue containing their songs.

Your entry must be received by February 1, 1989. Send your songs on disk (DOS 2 or 2.5) to: Antic Song Challenge, 544 Second Street, San Francisco, CA 94107. On the *disk label,* write your name, address, phone number, song filenames, titles, and composer or performer. All entries become the property of Antic Publishing Inc. and will not be returned.

USING THE PROGRAM

Use DOS command O to copy the AMP.EXE file to another disk that includes the DOS.SYS file. *Don't* attempt to run Antic Music Processor directly from the monthly Antic Disk. Use DOS command E to rename AMP.EXE to AUTORUN.SYS. Turn off your computer and remove all cartridges. Place the disk in drive 1. Hold down the [OPTION] key if you're using an XL or XE. Antic Music Processor will load and run automatically.

Following are the Antic Music Processor commands:

[L]oad a song—Press [L] followed by the filename of a song to load it from disk. This month's Antic Disk includes the sample music file COMESAIL, a highly expansive version of "Come Sail Away" by the rock group Styx from their "Grand Illusion" album.

[P]lay Music—Pressing [P] plays back the music in memory. But first, Antic Music Processor will prompt you for the voices and measures to play.

Select Voices—The highlighted voice numbers are the ones that are going to be played. To toggle a voice on or off, type the number (1-4) of that voice. Press [RETURN] after all voices are chosen.

Select Measures [*x,y*]—Measures to be played, starting at measure *x* and playing through measure *y*. Press [RETURN] after making your selection.

Playback will now begin. Pressing [START] before playback ends will return you to the main menu.

[E]nter Edit Music—Pressing [E] brings you to the Music Editor, which seems complicated at first. But with a little practice, it will become second nature to you. When entering the editor, the Voice #1 column will be highlighted and the first measure of each voice will be

displayed.

At the bottom of the screen are the status lines, showing:

1. Number of beats in the present measure (e.g.: Beats=0).

2. The current Meter and Tempo (e.g.: Meter=4/4 and Tempo=100 beats per minute).

3. The key signature (e.g.: Key=0#).

4. The amount of memory left for entering notes (e.g.: Mem=31250).

The following Music Editor Command Specifications assume that the reader has some elementary knowledge of music theory:

NOTES AND RESTS

Note[Acc][Oct][Dur][Env][/Dyn]: Rest[Dur]

Note: A-G

Rest: R

Accidental (Optional): #:F:N (1)

Octave (Optional): 1-6 (2)

Duration (Optional): D:D.:D..:D3: ^X (D=W:H:Q:E:S:T:Z; X=1-255)

Envelope:):>:':" (3)

Dynamic—quietest to loudest: PPP:PP:P:MP:MF:F:FF:FFF:F1:F2: F3:F4:F5:F6:F7

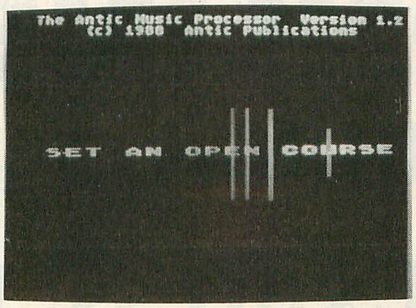
Bracket symbols [ ] are used for separating different options. If not specified, all optional items take on the values shown in the status lines at the bottom of the screen.

A note can be followed by an accidental—sharp (#), flat (F), or natural (N). You don't need to enter accidentals if they're in the key signature. Accidentals carry through until the end of a measure, or until you specify a new accidental. For example, C# remains sharp until you enter CN.

Note C, octave 4 (C4) is middle C. If you do not specify the octave, the octave number of the note nearest the previous note is used. For example, a C followed by a B3 is interpreted as C4, not C3.

) Ties notes together

> Normal note envelope (not



printed on screen after each note entered)

' Slightly faster decay than >

" Fastest note decay (stacatto)

MEASURES AND TEMPO

M—Insert measure marker at cursor.

Tx—Change Tempo to x (x=30 to 290) at cursor.

CURSOR COMMANDS

[CONTROL] [ARROW] key combinations move the cursor in the direction of the arrow. [SHIFT] [UP-ARROW] moves the cursor to the next measure, and [SHIFT] [DOWN-ARROW] moves it to previous measure.

CONTROL COMMANDS

Mx—Display measure x.

MET=x/y — Change meter (x=1-32, y=1:2:4:8:16:32).

KEY=na—Change key signature (n=0-7, a=#:F).

P—Play Notes in current edit column.

DELETE AND UNDELETE

[DELETE]—Remove the last character in the data entry line.

[CONTROL] [DELETE]—Remove the note at the cursor.

[CONTROL] [INSERT]—Undelete the note at the cursor.

CUT AND PASTE

[SHIFT] [DELETE]—Place the note at the cursor in the buffer.

[SHIFT] [INSERT]—Place the notes in buffer at the cursor.

[SHIFT] [CLEAR]—Clear out all data in the buffer.

MISCELLANEOUS

[ESCAPE] returns you to the main menu. This works at any point in the program except during playback.

[C] Clear Music—Press [C] to clear all notes currently residing in the computer's memory. Answering [Y] to the prompt carries out the function. Pressing any other key returns you to the main menu.

[T] Tempo—Playback speed can be selected pressing [T] from the main menu, or embedding tempo commands with the notes. Tempo can range from 35 (slowest) to 290 (fastest). Also, the most recent tempo change (if any) encountered during playback will be displayed here.

[S] Save File—Type in the filename and press [RETURN].

[D] Disk Directory—Pressing [RETURN] without specifying a filename will list all of the files on the disk. Once the directory has been displayed, you can [L]ock, [U]nlock or [D]elete a file.

[F] Format Disk

AMS FILE TRANSLATOR

The AMS File Translator converts any Advanced Music System II file into Antic Music Processor format. In BASIC, LOAD and RUN "D:CONVERT.BAS". Type in the source and destination files when prompted and be sure to specificy the drive numbers. Depending on the length of the file, the translation process could take quite a long time.

NOTE: Duration errors might occur during conversion. Notes with durations longer than 255 clicks (e.g. W.,W..) will be interpreted differently by Antic Music Processor. These notes should be deleted using Antic Music Processor and re-entered using shorter durations and ties. This process can be used to create notes of any length. ▲

ONLINE

WorldPort 2400

BBS Express! Pro

Ultimate XL/XE bulletin board. Reviewed by **Blake Arnold**

Keith Ledbetter's **BBS Express! Professional** is easily the most powerful bulletin board system program available for Atari XL/XE computers. It's a definite improvement over the author's original BBS Express! and offers options never before available in 8-bit Atari BBS programs. It even supports networking for transferring messages to and from other BBS Express! Professional boards.

The program requires SpartaDOS 3.2 and an Atari XL/XE with at least 64K memory. BBS Express! Professional uses subdirectories extensively, and there are quite a few of them to create. Luckily, the package includes a SpartaDOS batch file that creates all your subdirectories automatically. The only other requirements are a standard Hayes-compatible modem and an RS-232 interface (Atari 850, or ICD's Multi I/O or P:R: Connection). The program also supports the ICD R-Time 8 clock/cartridge—without it you'll have to set the time and date manually.

A hard disk is also recommended, primarily for speed, but also because you'll need as much disk space as you can come up with. Text files and modules take up about 220K. Add to that the message base files, file transfer areas and the userlog file and you'll see how a hard disk would make life easier.

Because the program must access a module file whenever you select a command from the menu, you should use a RAMdisk for the module files—about 180K worth. With a RAMdisk the load time is almost nonexistent.

The instruction manual is more than adequate, especially if you're already familiar with BBS Express!. It thoroughly explains setting up and starting the BBS. However, if you're unfamiliar with SpartaDOS, you'll also need to read your SpartaDOS Owner's Manual.

New features in BBS Express! Professional include an online User Editor and an Event Scheduler that automatically performs functions which require no input, such as deleting users who haven't called within a predetermined number of days. Text display in either 40 or 80 columns and networking with other BBS Express! Professional boards have also been added. The message bases and file areas have been enhanced and a DOS shell has been added for the convenience of the sysop.

Modules in BBS Express! Professional may be viewed as separate "programs" that the BBS loads to perform functions in a specific area. For example, the message base commands are contained in one module and the file area commands are contained in another. When a new command is selected, the appropriate module is loaded into memory. Each module contains more commands for its own area than would a BBS program written with an all-in-one approach, such as the old BBS Express!. You can also write your own modules for the BBS using ACTION! or machine language and there are modules available on the BBS PRO Support Board for online games, utilities, and upgrades of current modules.

The program's userlog file contains much more information than did the original BBS Express!. Each user's entry contains security flags for almost every area of the BBS, giving the sysop total control.

Another new feature is that if a user's security level isn't at least as high as the menu item's security level, the user cannot access that item.

The file transfer section itself has also been vastly improved. Short descriptions for each file are allowed. A command to show all files uploaded since a user's last call has been added. Up to 32 separate file areas can be created and BBS Express! Professional can maintain over 500,000 files online at once. For transferring files the program supports standard XMODEM, CRC XMODEM and YMODEM protocols.

BBS Express! Professional is an exceptional effort—just about everything you'd want in a BBS, and definitely better than any other Atari XL/XE BBS program. The instruction manual is well written and easy to follow. With the module system the program should never become obsolete:

just use new modules as they become available. If you're currently running a BBS Express! board, upgrade to this new version. If you're just starting out with a BBS, this is the program to use.

$49.95, plus $4 shipping. Requires XL/XE, minimum 64K, SpartaDOS 3.2, Hayes-compatible modem and RS-232 interface. Orion Micro Systems, 2211 Planters Row Drive, Midlothian, Virginia 23113. (804) 794-9437, 6-9 p.m. Eastern time



Worldport 2400 Modem—it's bigger than a quarter.

Tiny, fast, dependable modem. Reviewed by **Charles Jackson**

WORLDPORT 2400

The **WorldPort 2400** portable modem is one of the tiniest 2400 baud modems we've seen. It's fully Hayes compatible so you don't need special software—you don't even need to rewrite your macros. We unplugged our trusty Hayes 1200 Smartmodem and plugged in the WorldPort. Except for changing the baud rate from 1200 to 2400, all our telecommunications software ran as is.

We tested the WorldPort 2400 using every modem program we could find, including BackTalk, HomeTerm and Chameleon on our 8-bit stations, and Flash, PC/Intercomm and FoReM ST on the ST.

Measuring 4×2-1/4×1 inches, the WorldPort is about the size of a deck of cards. It weighs slightly less than 6 ounces, including its 9 volt alkaline battery, and is available with a male or female DB-25 connector. Atari 8-bit owners will need an Atari 850 interface or an ICD P:R: Connection, plus appropriate cable. ST owners will need the female version.

The WorldPort has four status LEDs: Low Battery, High Speed to indicate 2400 baud, Carrier Detect and Call Progress which glows whenever the modem is dialing. The modem also has a small piezoelectric speaker which lets you hear dial tones, carrier tones and busy signals.

At 2400 baud, it runs rings around most built-in modems, which tend to run at 300 baud. And since the WorldPort is fully Hayes-compatible, there are no new commands to learn. The same AT commands you use at the office will now work with your laptop.

Surprisingly, the WorldPort doesn't need an expensive, hard-to-find battery. It uses one standard 9 volt battery. The battery can even be changed without disassembling the modem.

You also get an AC power supply to preserve battery life. Just plug it into the wall and you're ready to go. And if this power supply is interrupted, the WorldPort will automatically switch back to battery power without disrupting your connection.

If you're staying in a hotel without a modular phone hookup, the WorldPort also accepts acoustic cups. With cups, the WorldPort is limited to 1200 baud. The cups are not included, but are available through many electronics stores.

BIG TEST

Our WorldPort 2400 arrived as we were beginning to upload articles to our ANTIC ONLINE Index on CompuServe. (*Yes, this major project is under way. We'll let you know in the magazine as soon as a completion date is in sight.*—ANTIC ED)

Faced with uploading nearly 100 double-sided disks chock-full of six years of Antic articles, we decided this would be an excellent, and gruelling, test of our WorldPort. So we loaded Chameleon, configured it to 2400 baud and selected Kermit protocol.

Since Kermit allows batch uploads, we'd type one command and Kermit would automatically transmit every file on the disk, one after another, until every file had been sent. After the last file had been sent, we'd put in the next disk and continue transmitting. This process continued ten hours a day at 2400 baud for the next nine working days. The WorldPort survived . . .

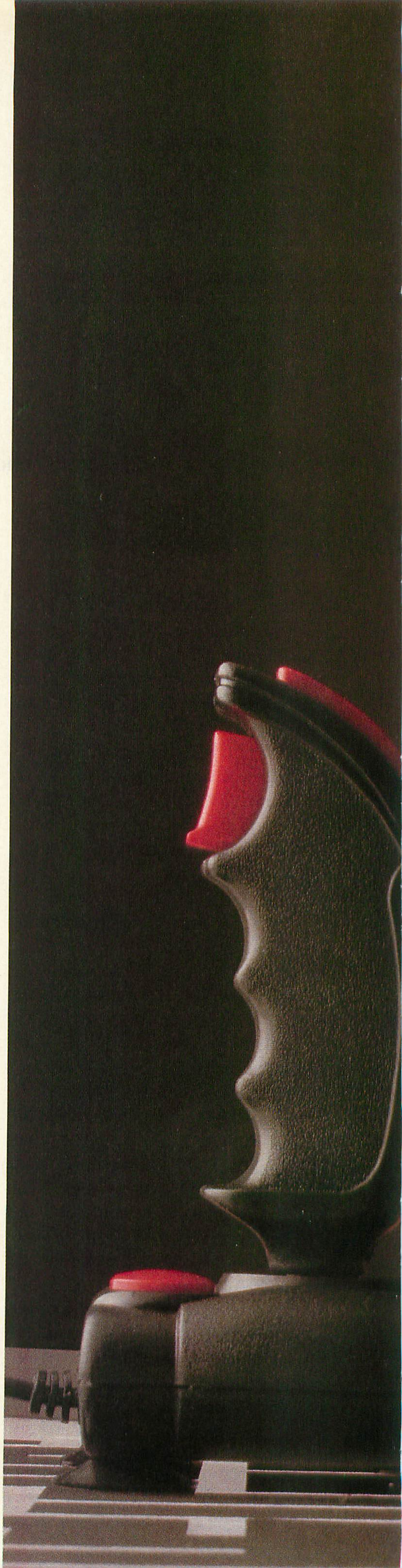
However, after six days the WorldPort wasn't picking up the 2400 baud carrier as quickly as it used to. Soon, we found ourselves dialing three or four times before the modem would connect. By the ninth day, we were forced to drop back to 1200 baud. At this speed, the WorldPort operated perfectly. After two more days at 1200 baud, the modem was able to dial and connect to 2400 baud services, but only early in the day. As the modem grew warmer, 2400 baud became more difficult to use.

So the WorldPort 2400 proved the hard way that it is a dependable, versatile and powerful modem. Though the WorldPort is tiny, it's just as reliable as any standard-size modem.

$359. Touchbase Systems, 160 Laurel Avenue, Northport, NY 11768. (516) 261-0423.

The JOY of JOYSTICKS

Pick of the sticks—a comparison review. **By David Plotkin**



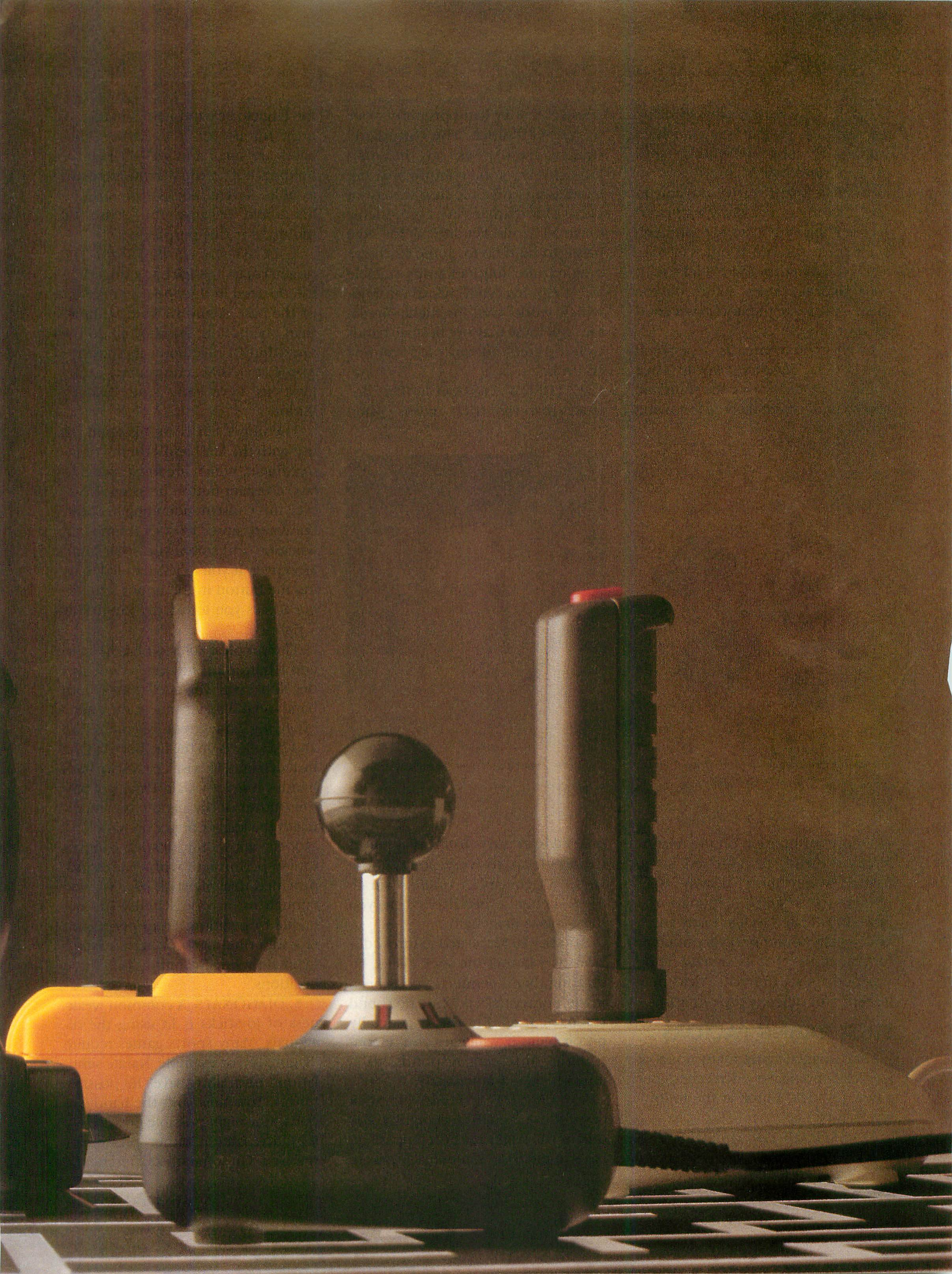
I: WHAT MAKES A GOOD JOYSTICK

Most games, especially arcade games, require a joystick to control them. Even games which don't require a joystick often let you use one if you wish. Originally, Atari owners had only the standard Atari CX40 joystick. With its small, black plastic case, slender stick and single fire button, this joystick could be used either on a table or held in one hand while manipulating it with the other.

The Atari joystick had several problems, including lack of adequate control for some games. It wasn't especially rugged—the internal plastic parts broke after sufficient heavy use. Until about 1981, the CX40 was virtually the only game in town. But this was bound to change.

Among the first alternative sticks was an immensely rugged device from WICO, a company that manufactures joystick controllers for commercial arcade games. Soon, dozens of alternate joysticks appeared. One company, Gemini, brought out a clone of the entire Atari 2600 video game system, identical even to the joystick. While Gemini no longer makes the 2600 clone, it still makes decent joysticks.

Companies added all sorts of gimmicks to their sticks to differentiate them from the others, and a wide selection of Atari-compatible joysticks is still



available. One reason why so many are out there is that a stick which works on the 8-bit Atari will also work on a Commodore or an ST.

Joysticks are primarily available in the larger toy stores. Many are priced very reasonably at $7 to $12, although fancy sticks can run as much as $50. Since you can't try these sticks with your favorite games before buying them, make sure the store has a good return policy.

Joystick preference is a personal thing. One person's favorite stick could be totally wrong for someone else, so understand that the following



Competition Pro joystick line from Happ Controls. Clockwise from top left: 300X, 5000, 1000.

is simply *my* opinion on the relative merits of the joysticks I tested. Some factors weigh more heavily than others—for example, though the Epyx 500XJ rated well in many areas, I personally found it so very uncomfortable to use that its *overall* rating was poor. Also, different sticks may be better for different types of games.

STICK RATING FACTORS

I have logged many, many hours of joystick-bending. So when I check out a new joystick, I look at the following factors:

1. SHAPE OF THE HANDLE: This is very important. If the handle doesn't fit your hand properly, your scores will suffer. The "standard" straight handle—as on the Atari joystick—is a good compromise, but handles are available in a variety of sizes. Thin handles are comfortable for small hands, but difficult for large hands to hold on to. Some sticks are molded into full handgrips suitable for wrapping your hands around, which works well for flight simulators. But these may not fit small hands well and aren't adequate for very fine control.

2. THROW DISTANCE: The distance that the stick travels when



Mindscape PowerPlayer joystick is highly rated in our chart.

pressed can vary from very short (tight sticks) to very long (loose sticks). Tight sticks often seem to work better, especially when you must move diagonally.

Another factor related to throw distance is whether the stick clicks, indicating that a connection has been made. Some sticks provide no sound feedback at all, but this is generally no problem if whatever you're controlling onscreen responds to a joystick press immediately.

3. BASE SIZE AND SHAPE: Stick bases are generally rectangular, but one of the sticks in this comparison has a round base. Some stick bases are too large to be hand-held, but they're great for use on a tabletop. Other bases are small and well-shaped for holding, but are too narrow to put on a table. Several sticks can *only* be hand-held because the "base" is molded for this purpose.

4. POSITION OF BUTTON: The original Atari joystick had a single button, located in the upper left corner of the base. Many sticks have more than one button, but they all do the same thing. Unlike some joysticks for Apple or IBM computers, Atari joysticks have only one "active" button.

The upper left corner is good for use with the left hand's thumb or index finger, which are most suited to fast, constant button-pressing. However, this constant pounding has been known to cause "joystick thumb," an irritation and soreness of that joint. Moreover, if you're left-handed, having the button in the upper left corner forces you to use the joystick as a righty.

The simplest solution has been to add a button in the upper right corner. Either way, you need to keep both hands on the stick. Some games, notably flying games, require you to find and press keys on the keyboard in the heat of battle. This isn't easy with both hands on the joystick. Placing a button on top of the handle (or underneath the trigger finger on handheld models) allows for all stick controls to be performed with one hand, provided that the stick base is wide enough to provide stability in one-handed operation. Long periods of fast shooting may not be as easy to maintain when the button is in these positions.

5. DIAGONALS: A common weakness of joysticks is in using the diagonals. Many sports games require diagonals. For example, Karate simulations invariably have 16 possible moves. You must shift the handle to one of the eight possible positions—with the button either pressed or released. On some sticks, finding the

diagonals reliably is virtually impossible, which becomes very frustrating. Sticks with short throws tend to be best at playing the diagonals.

Diagonals can be difficult to locate because often there's no separate switch for the diagonal. Instead, you must press the handle in such a way as to close the contacts for both of the directions on either side of the diagonal. For example, to move up and right, you must close the switches for both the "up" and "right" directions. Miss by even a little bit and you will get a different direction, generally with disastrous results to your score. A lesser problem is that with some sticks, you can get a diagonal when you don't want one.

6. GIMMICKS: In the race to get your joystick-buying dollar, manufacturers try all sorts of variations. Some work, some don't. One short-lived vendor mounted an arcade-quality joystick on a huge base. The problem was that there was no place to put it. One variation that works pretty well is the "auto-fire" function, generally a switch that automatically cycles the fire button several times a second when the trigger is held down. This can save wear and tear on your hand.

One variation that doesn't work well is placing suction cups on the bottom of the joystick base. It is a good idea in theory—allowing use of two joysticks or easy one-handed use of a stick. Unfortunately, this doesn't work well in practice. Most computers and video game systems are not located on tables which suction cups will easily adhere to, so most often the suction cups actually reduce stability of the base. The stick has a tendency to rock on the rubber cups and even slide around. Over the years, I have tried various types of suction cup-equipped joysticks with little success. A low base with rubber anti-skid feet works better.

And now it's time to take a look at the Atari-compatible joysticks that **Antic** found available in the market this autumn.

JOYSTICK CHART

(E-Excellent, VG-Very Good, G-Good, F-Fair, P-Poor)

Name	Auto Fire	Diag	Hor/ Vert	Rugged	Price	Base Size	Over all
Gravis	N	F	G	E	39.95	6.25×5.25	VG
Slik-Stik	N	F	G	E	7.99	3.5×3.5	G
Tac-2	N	G	G	E	13.99	4×4	G
Tac-3	N	P	G	G	15.99	5.25×3.5	G
Tac-5	N	G	E	G	19.99	5.25×3.5	VG
Commander	N	G	G	G	14.95	4×3.75	G
500XJ	N	E	E	E	19.99	Hand-held	P
Gemstick	N	F	G	F	7.99	3.5×3.5	F
Gemstick Pro	N	G	G	G	9.99	4.25×4.75	G
Deluxe	N	G	G	G	9.99	3×3	G
K-20	Y	P	F	G	12.99	5(rnd)	F
Bat Handle	N	F	G	E	19.95	4.5×4.5	G
Ergostick	N	G	E	E	24.95	Hand-held	P
Archer Deluxe	Y	P	G	G	19.99	5×4.25	G
Ace	N	G	G	G	7.99	3×3.5	G
Mazemaster	N	P	G	G	8.97	3.5×3.25	F
Comp.Pro 1000	N	P	F	F	8.99	5×2.75	P
Comp.Pro 300X	N	P	F	F	10.95	4.5×3.5	P
Comp.Pro 5000	N	G	E	E	17.95	3.5×4.5	G
Pointmaster	N	P	G	G	11.97	3.75×3.75	F
Hot Stuff	Y	P	P	F	9.95	4.75×4	F
Zipper	N	P	F	F	7.99	3.5×3.5	F
Freedom Stick	Y	P	G	F	69.99	7.75×6	P
Power Player	N	E	E	G	29.95	Hand-held	E

II: JOYSTICKS AT HAND

GRAVIS

The **Gravis** ($39.95) has the largest, most stable base of any joystick I reviewed. The stick is foam-covered and molded into a handgrip. Another difference is that the throw is adjustable over a wide range by use of a thumbwheel, so you can set the stick any way you like. There are three buttons, one on top of the stick and two on the left side. Each has an adjustable knob which allows the button to either be a fire button or to simulate the stick being pressed all the way forward or back. This feature is handy for car-driving games, where shifting is done with the stick. It is very solidly built.

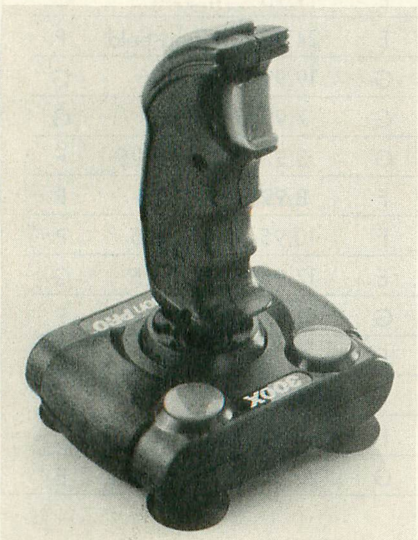
Diagonal Selection: Fair
Horizontal/Vertical Selection: Good
Ruggedness: Excellent
Base Size: 6.25×5.25

Advanced Gravis Ltd., 6894 Palm Avenue, Burnaby, British Columbia, VJ5 4M3 Canada. (800) 663-8558.

SUNCOM

Slik-Stik ($7.99) is the smallest of the Suncom line. It has a very short throw and no feedback sounds. The stick is slender with a knob at the top, so it is easy to hold on to. The single button is located in the upper left corner. The small base seems designed to be hand-held. In fact, this stick lacks any rubber feet, so it slides around on most surfaces, making it unsuitable for tabletop play.

Diagonal Selection: Fair
Horizontal/Vertical Selection: Good
Ruggedness: Excellent
Base Size: 3.5×3.5



Competition Pro 300X.

Tac-2 ($13.99) is the smallest of Suncom's "Totally Accurate Controller" line. This stick has a slender metal shaft with a knob at the top. It has a very short throw and no audible feedback. But slots that the stick slides into when pressed makes the diagonal selection better than average. The two buttons are in the upper left and right corners.

Diagonal Selection: Good
Horizontal/Vertical Selection: Good
Ruggedness: Excellent
Base Size: 4×4

Tac-3 ($15.99) features a molded handgrip with a longer throw than the Tac-2. But it still has no audible feedback. The front of the base is sloped down and is a comfortable finger rest. One button is located on top of the stick, with two additional buttons mounted in the sloping portion of the base. The long, narrow base is stable on tabletops and is narrow enough to be hand-held.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 5.25×3.5

Tac-5 ($19.99) is the top of this Suncom line. It incorporates all the features of the Tac-3, but also has good audible feedback. It's one of the best controlling sticks I've seen.

Diagonal Selection: Good
Horizontal/Vertical Selection: Excellent
Ruggedness: Good
Base Size: 5.25×3.5

Suncom, 290 Palatine Road, Wheeling, IL 60090. (312) 459-8000.

COMREX COMMANDER

The **Comrex Commander** ($14.95) features a tall, slender handle which allows for very fine fingertip control. It has a short throw and excellent audible feedback. The two buttons are located in the upper left and right corners of the base. The base provides good stability on a tabletop and can also be hand-held.

Diagonal Selection: Good
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 4×3.75

Comrex, 3701 Skypark Drive, Suite 120, Torrance, CA 90505.

EPYX 500XJ

The unusual **Epyx 500XJ** ($19.95) stick is made to be held in the left hand and is unsuitable *unless* it's hand-held. The stick is slender with a knob on top, and has a short throw with good audible feedback. The trigger is located in place for the left index finger. While this stick is excellent for games requiring precise control, it fails miserably for arcade games which require constant firing. The muscles on the inside of the arm aren't up to the load and soon cramp painfully. It's too bad an otherwise innovative stick is spoiled by poor trigger design.

Diagonal Selection: Excellent
Horizontal/Vertical Selection: Excellent
Ruggedness: Excellent
Base Size: Hand-held

Epyx, 600 Galveston Drive, Redwood City, CA 94063. (415) 368-3200.

GEMINI

The difference between the **Gemstick** ($7.99) and the original Atari joystick is that the button in the upper left corner is yellow. The slender handle has a short throw and some audible feedback, so it's better than the Atari stick.

Diagonal Selection: Fair
Horizontal/Vertical Selection: Good
Ruggedness: Fair
Base Size: 3.5×3.5

Gemstick Pro ($9.99) has a wider, more stable base. The handgrip stick has a moderate throw and some audible feedback. One button is on top of the stick and the other is in the upper left corner. The stick comes with both regular rubber feet and suction cups.

Diagonal Selection: Good
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 4.25×4.75

Gemini, 215 Entin Road, Clifton, NJ

07014. (201) 471-9050.

CHALLENGER

The **Deluxe Joystick** ($9.99) has a tiny base that works well in the hand, although it's not stable enough for tabletop use. Also, the base has suction cups which tend to make the joystick rock. The handgrip stick has a short throw and good audible feedback. The two buttons are on top of the stick and in the upper left corner.

Diagonal Selection: Good
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 3×3

The **K-20** ($12.99) has a round base which takes up quite a bit of room on your tabletop without providing good stability. It also has suction cups. The handgrip stick has a moderate throw with no feedback. The two buttons are located on top of the stick and under the trigger finger. There is a switch to engage auto-fire, which is helpful, since neither trigger is easy to press fast and continuously.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Fair
Ruggedness: Good
Base Size: 5-inch diameter

Challenger (Framer Associates), P.O. Box 201, Sharon, MA 02067.

WICO

WICO's **Bat Handle** ($19.95) is a good, stable, all-purpose stick which has been my mainstay for several years. It's extremely durable, but the large base makes it suitable only for table-top use. The bat-shaped handle has a moderate throw with no feedback. One button is on top of the stick and the other in the upper left corner of the base. A switch must be used to choose between the buttons, which is annoying.

Diagonal Selection: Fair
Horizontal/Vertical Selection: Good
Ruggedness: Excellent
Base Size: 4.5×4.5

The hand-held WICO **ErgoStick** ($24.95) is quite similar to the Epyx 500XJ except that it's rubber-coated. It has recessed finger ridges along the bottom and the stick handle seems a bit narrower than the XJ's. Again, it must be held in the left hand. It suffers from the same problems as the Epyx stick—plus the trigger is recessed, making it hard to operate even if you have medium-sized hands.

Diagonal Selection: Good
Horizontal/Vertical Selection: Excellent
Ruggedness: Excellent
Base Size: Hand-held

WICO's **Archer Deluxe Competition Joystick** ($19.99) is excellent for flight simulators, with its wide base and molded handgrip handle. It has a moderate throw with audible feedback. There are buttons under the trigger finger and on top of the stick, but none on the base. The buttons have an auto-fire switch. The base has suction cups, but they don't interfere with stability the way suction cups normally do.

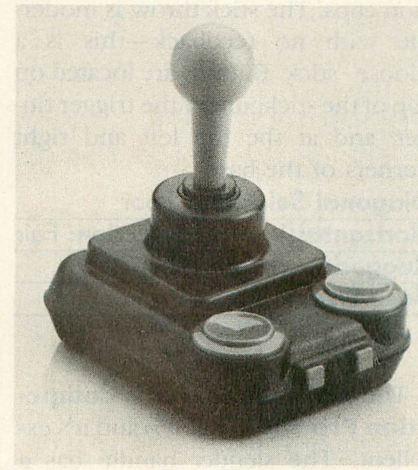
Diagonal Selection: Poor
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 5×4.25

WICO, 6400 W. Gross Point Road, Niles, IL 60648. (312) 647-7500.

KRAFT SYSTEMS

The tiny **Ace** ($7.99) joystick performs very well. It has a standard slender handle with a short throw and good audible feedback. The button is in the upper left corner.

Diagonal Selection: Good
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 3×3.5



Competition Pro 5000.

Mazemaster ($8.97) is another small stick from Kraft. It has a slender, molded stick with a short throw and no audible feedback. The trigger is located at the top left corner. What's unusual about this stick is the switch which can be set for either four-way or eight-way play. You can "lock out" the diagonals.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 3.5×3.25

Kraft Systems, 450 W. California Avenue, Vista, CA 92083. (619) 724-7146.

COMPETITION PRO

The **Competition Pro 1000** ($6.95) has a long, narrow stick that's wider at the top than at the bottom. It's difficult to control because it's very loose and provides no audible feedback. The single trigger at the top center of the base is hard to reach with either hand.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Fair
Ruggedness: Fair
Base Size: 5×2.75

Competition Pro 300X ($10.95): This entry has a fully molded handgrip stick and a wider base than the 1000. The base is equipped with suction cups. The stick throw is moderate with no feedback—this is a "loose" stick. Buttons are located on top of the stick, under the trigger finger, and at the top left and right corners of the base.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Fair
Ruggedness: Fair
Base Size: 4.5×3.5

The top of the line is the **Competition Pro 5000** ($17.95) and it's excellent. The slender handle has a short throw and distinct audio feedback. There are two buttons, located at the top left and right corners of the base. However, the lack of rubber feet means that this joystick must be handheld or used on a nonstick surface.

Diagonal Selection: Good
Horizontal/Vertical Selection: Excellent
Ruggedness: Excellent
Base Size: 3.5×4.5

Happ Controls, 1251 Pagni Drive, Elk Grove, IL 60007. (312) 593-6130.

POINTMASTER

The **Discwasher Pointmaster** ($11.97) is a handgrip stick with a single button on top. The stick has a moderate throw and some audible feedback. The round base is not especially stable. I have yet to find a game that this stick is ideally suited for, since it seems to be a flight simulator joystick but requires both hands to steady it.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Good
Ruggedness: Good
Base Size: 3.75×3.75

Discwasher, 4309 Transworld Road, Schiller Park, IL 60176. (312) 678-9600.

BEESHU

The large **Hot Stuff** ($9.95) is the only joystick which comes in assortment of day-glo colors. It sports a full handgrip stick with a moderate throw and no audible response. There are fire buttons on top of the stick, under the trigger finger, and at each of the top corners. An auto-fire switch is also provided. There are suction cups mounted under the base.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Poor
Ruggedness: Fair
Base Size: 4.75×4

Beeshu's **Zipper** ($7.99) is a dead ringer for the original Atari joystick. Unfortunately, it duplicates everything about the original stick, which was all right when it was the only game in town, but is now easily outclassed by less expensive sticks. The stick has a moderate throw with no feedback, and it is difficult to get precise control.

Diagonal Selection: Poor
Horizontal/Vertical Selection: Fair
Ruggedness: Fair
Base Size 3.5×3.5

Beeshu, 101 Wilton Avenue, Middlesex, NJ 08846. (201) 968-6868.

FREEDOM STICK

Camerica's wireless remote **Freedom Stick** ($69.95) tabletop wireless remote control system is unique in several ways. It not only works with Atari games and computers, but also with Nintendo and Sega game systems. The necessary additional controls are all built in—two independent fire buttons, [START] and [SELECT] buttons, and 1-2 player switch.

The Freedom Stick comes with a small remote unit that attaches by cable to the computer or game system. The joystick controller itself can be placed within a fairly wide angle from the remote unit and still work—up to a distance of about 15 feet. An auto-fire switch is also provided. The unit is battery powered and has no provision for an AC adaptor, so be prepared to buy lots of batteries.

The last unique feature, unfortunately, is that the Freedom Stick is of extraordinarily poor design. Both buttons are on the right side of the stick where they cannot possibly be reached by a right-handed player! The stick itself is a metal rod with a ball on top. It has a long throw with audible feedback. The base is equipped with suction cups which collapse down to form rubber feet. The lightweight plastic case is not impressively sturdy, either.

Diagonal Selection: Very Poor
Horizontal/Vertical Selection: Good
Ruggedness: Fair
Base Size: 7.75×6

Camerica, 230 Fifth Avenue, Suite 1100, New York, NY 10001. (212) 689-7848.

POWER PLAYER

Mindscape's unusual **Power Player** ($29.95) is a short stick set in a molded handgrip. The throw is short with audible feedback and excellent sensitivity. The trigger button is under the trigger finger of the hand which holds the stick, but since only a very short motion is required to activate the fire button, this button is adequate for even fast-action games. This stick must be used with two hands, making it unsuitable for games that require the keyboard for some commands. However, for games that are completely joystick-driven, this is a superior, comfortable stick. In fact, it's one of the best sticks in this entire comparison. ▲

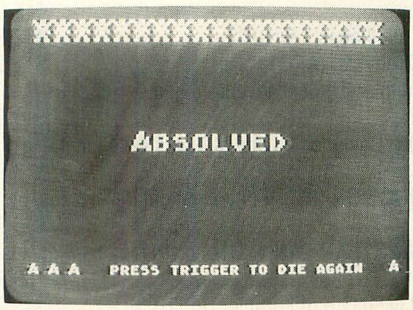
Diagonal Selection: Excellent
Horizontal/Vertical Selection: Excellent
Ruggedness: Good
Base Size: Hand-Held

Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062. (800) 221-9884.

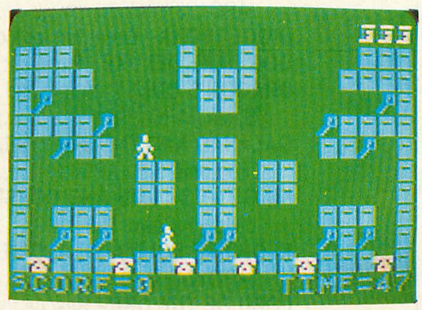
DISK BONUS

Hell! Contest Winners

By **Gregg Pearlman**, Antic Assistant Editor



Original Escape From Hell!



Contest Winner How Nice For You, Dear

Escape From Hell!—**Antic's** June 1988 Game of the Month—drew quite a bit of favorable response. We even received several letters from clergy members who loved the game and changed it only slightly for their religious school classes.

Plenty of entries also came in for our Challenge From Hell contest to redesign the look and storyline of the original *Escape From Hell!* Grand Prize Winner is Gwen Lenker of San Francisco, who gets software from The Catalog. Gwen is obviously a major talent at this sort of game reprogramming—she also won our J.D. Casten *Rebound* screen design contest in August 1987.

In Gwen's prizewinner, "How Nice For You, Dear," you're a hard-copy communications expediter at Busywork International. You've got plenty to do, but your mom has insisted on visiting you at work because she just wants to know exactly what you do for a living. As long as Mom doesn't get in your way, you'll do fine. But if she interferes at all, kiss your job goodbye.

As you work your way up the corporate ladder—answering phones, sharpening pencils, shutting off the computers, playing games and trampling potted plants as you go—Mom will find ways to hamper your progress. She means well, but compared to this, getting out of Hell was a piece of cake.

Unlike *Escape From Hell!*, each screen in "How Nice For You, Dear" features a different character set and presents different challenges. The **Antic** staff was impressed with Gwen's use of graphics and sound (phones ringing, time-clocks being punched), and we found her scenario particularly engaging. How Nice For You, Dear appears on this month's disk as HOWNICE.BAS.

Two runner-up winners will receive this month's Antic Disk issue. Their games should be available for downloading from ANTIC ONLINE this month. After you log onto Compuserve, type GO ANT-2550 and follow the onscreen instructions.

"Meltdown!" by Ryan Cain of Sacramento, California has you trying to halt a meltdown at the Rancho Seco nuclear facility. You must run around the plant—often on top of the bones of the noble failures who went before you—and set off the bombs. But standing in your way is a radioactive, nuclear, mutated, man-eating rat.

David Sherwin of Thornhill, Ontario, Canada, sent us three variations of *Escape From Hell!*, all of which merit mention. "Mushroom Patch" puts you in a weird, warped land full of deadly creatures. You've been turned into a purple worm and you must eat every anti-radiation apple you find, propelling yourself by bouncing off the magic mushrooms.

Sherwin's "School Time" has you trying to escape from the worst Hell imaginable—that one horrid teacher in everyone's past, who had it in for you and you alone. And in the "House of 31" Flavors, you're a vacuum cleaner, of all things, who must suck up all kinds of pastries and avoid falling into the melting ice cream sundaes.

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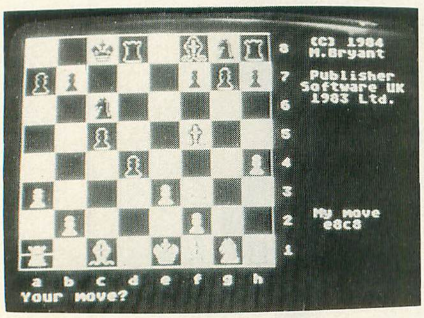
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Product Reviews

COLOSSUS CHESS, BLUE TEAM BRIDGE



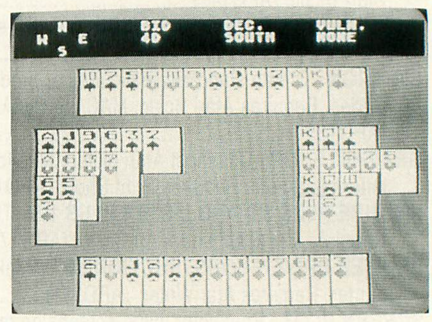
When I first received these games I was surprised. The Atari 8-bit market already has several excellent bridge and chess games, so the addition of more low-end versions seems superfluous. But while this may be true, these two programs nonetheless exceed the generic expectations they produce.

Actually, this is not the first time I had played **Colossus Chess** ($15.95). It challenged (and defeated) me a couple of years ago, when it was an import from England, just before it landed in The Catalog. I felt that it was the premier chess game, a bargain at twice its low price.

Even with Chessmaster 2000 as its main rival in the marketplace, Colossus still offers the best price/performance ratio. This is because Colossus Chess contains nearly all the features of Chessmaster 2000, except the high price tag. Sure, the screen display isn't quite as attractive, colorful or striking. But Colossus plays a good game and has all the options you need, such as move take-back, board setup and even the ability to view the program's thinking processes. Also included are a clock and a teaching mode, as well as multiple levels of play. And the program uses my favorite input device, the joystick.

Unfortunately, **Blue Team Bridge** ($19.95) was not quite as good, but it is complete—perhaps too complete. Its two disks contain enough information to teach both the novice and the expert a thing or two about bridge. The author admits that while the program excels at bidding, it's slightly weak in actual play. We quickly found this to be true—it does bid the standard Blackwood and Stayman, but such esoteric bids as the gambling 3 no trump and Roman 2 diamond are likely to be lost on most players. And by making the bidding so strong, the author has split the program into two modules, one that bids, one that plays—and which cannot coexist in memory. Thus there's plenty of time-consuming disk access.

Chessmaster 2000's power—without the price.



Also distressing were a couple of apparent bugs in the program. For instance, after bidding a saved hand, you may then play that hand. But if you review the bidding of the saved hand, the program displays not what you actually bid, but what it thinks you *should have* bid. Another error locks up the program after playing one saved hand, forcing a reboot before you can play another.

Because of the low price, manuals for both these games are provided on the disks. This documentation can be sent to a printer.

But overall, both of these programs—especially Colossus Chess—play very strong games and are good values. The best thing about each is that few players will find them inadequate opponents.—STEVE PANAK

48K disk. The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001, (415) 957-0886.

XG-1

Light Gun Finder

No more plugging and unplugging. **By Matthew Ratcliff**

It's awkward to plug your joystick or light gun into the Atari XE Game System because of the way that the ports are positioned. This short routine, when inserted in your games, makes it possible to keep your joystick and light gun plugged in constantly. This BASIC program is meant for use by owners of the Atari XEGS computer and XG-1 light gun. However, it will work on all 8-bit Atari computers of any memory size, with disk or cassette.



I am sure that just about all owners of the Atari XE Game System have been frustrated by the juggling of joystick and light gun cables needed when you play light gun games such

as Barnyard Blaster and Bug Hunt. The XE Game System's controller ports are beneath the case overhang and they slant forward at a very awkward angle.

But all that cable switching shouldn't be necessary. The right software could automatically detect which port the XG-1 light gun is being used from. This would allow active gamers to leave their joystick and light gun cables plugged in virtually all the time. You'd need to change cables only for games that require two joysticks, a paddle, etc.

Software detection of the Atari XG-1 light gun is actually quite simple. I studied some Atari technical documentation and found that regardless of which joystick port the gun is attached to, memory locations LPENV (565) and LPENH (564) are always updated by the operating system.

In fact, both Barnyard Blaster and Bug Hunt could have been just a bit smarter using a routine similar to Gun Finder. If the games had used such a routine, then the light gun could always be plugged into port 1 and a joystick always connected to port 0.

The XEGS ports slant at a very awkward angle.

Whenever the light gun is plugged into any port, that port's joystick reading will be 14 instead of 15. Whenever the gun's trigger button is pressed, the joystick reading for that port goes to 15.

As a simple test, plug your light gun into port 1 and a joystick into port 0. Now fire up Bug Hunt or Barnyard Blaster. Pressing the trigger on the gun does nothing, but pulling back and releasing the joystick does. Notice that when firing with the joystick handle in port 0, the light gun positions on the display are accurate, even though it is plugged into port 1.

Listing 1 is the BASIC sample program for detecting and reading the light gun. Type in Listing 1, GUNDET.BAS, check it with TYPO II and SAVE a copy before you RUN it.

Listing 2, GUNDET.M65 is a MAC/65 assembly language source code example with the gun detect and read routines. You don't need to type Listing 2 in order to use the Gun Finder routine.

St. Louis engineer Matthew Ratcliff is a Contributing Editor to **Antic**.

Listing on page 74



ANTIC'S 1988 SUPER 8-BIT CONTEST PROVES THAT ATARI HOBBYIST PROGRAMMING IS STILL GOING STRONG, WITH EVER-MORE SOPHISTICATED TECHNIQUES BEING USED.

Atari at the Gazette

Antic's Infobits is their database. ***By Robert MacLean***





Typical Atari workstation at the Gazette.



County Gazette publisher Keith Johnson gets news via phone while reporter Jerod Miller types the story on an Atari 800XL workstation. A television set is used as a monitor in the newsroom so that local newscasts can be tracked.

At a time when most small newspapers are switching to desktop publishing on computers with megabytes of memory, it would seem unusual for a leading local newspaper to use Atari 8-bit computers. But the Johnson's County Gazette in Olathe, Kansas uses seven Atari 8-bits to perform all computer-related tasks except billing and typesetting.

This newspaper is a tabloid feature-shopper with a circulation of 20,000 in suburban Kansas City. Our highly competitive market has four contending publications, so serious cost control is required.

In the spring of 1985, the Gazette wanted low-cost computer equipment that was efficient and useful equipment. At that time, a whole Atari system with monitor cost $350—meaning that five work stations could be purchased for the price of one IBM PC compatible. And for the Gazette's needs in 1985, five PCs would have been overkill.

ENHANCEMENTS

Although a newspaper does mostly word processing, something more than just a 64K computer was needed to manipulate large databases and for programming. So one Atari 800XL was equipped with 256K of RAM and Omni-Mon and Omni-View hardware enhancements from CDY Consulting. We also use this computer for editing manuscripts, some of which are submitted on Atari disks and some on IBM-compatible disks. Our Happy-enhanced Atari 1050 disk drive is used

to convert text files from IBM to Atari format.

Omni-View provides an 80-column display used for editing and creating tables of information. Omni-Mon is a hardware-based means of reading and writing information on disks so we can modify programs to suit the Gazette's needs.

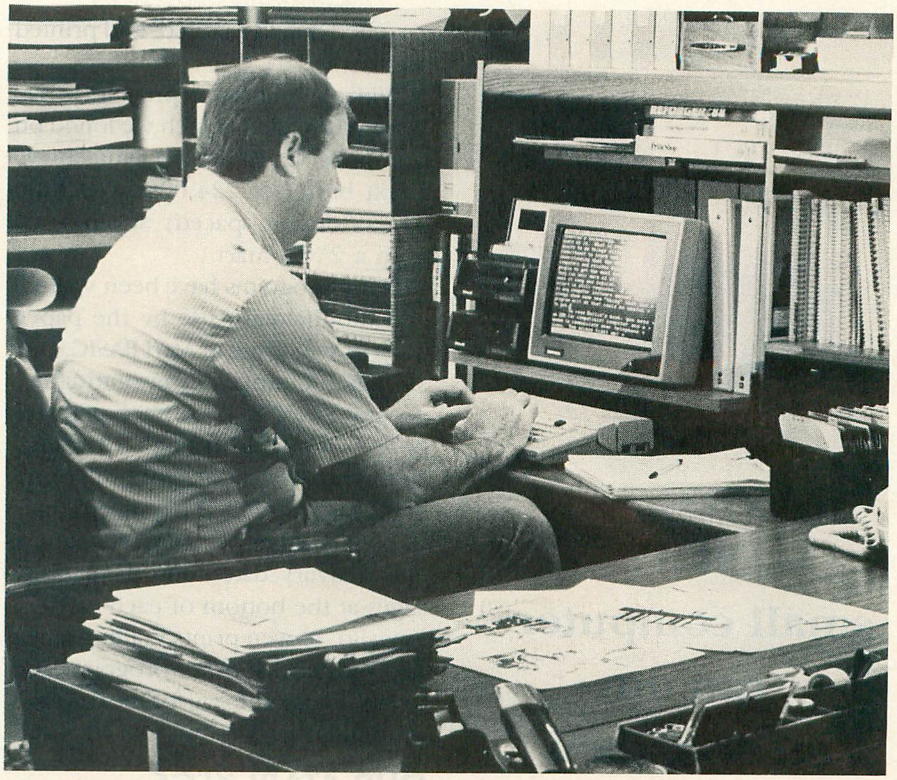
SOFTWARE USED

A modified version of the free-form database *Son Of Infobits* from **Antic**, May 1985 is used for keeping track of articles from the Gazette and other sources, plus clip-art and photo files.

Infobits uses only one field per record and it can be only three screen lines long, but searches are made on all characters in the entire file. The Gazette version automatically copies data to a RAMdisk when the computer is turned on. Searches of every word in as many as 1,500 records takes only about 30 seconds at RAMdisk speed. Results are sent to the screen or a printer. Indus GT disk drives plus an Atari 1050 with U.S. Doubler are used when we need double-density disks for large data files.

Omni-View allows an 80-column display for text produced with OmniWriter-80, the word processor supplied with the hardware. This program shares files with TextPro, an even more powerful 40-column word processor available on CompuServe. TextPro is easily adaptable for many uses by adding extensions to the program and creating macros to help with tasks such as newsletters and printed forms. TextPro is used by our area freelance writers because it is easy to learn.

The PaperClip word processor is used most often for in-house manuscript writing and correspondence. The fast print preview feature makes writing letters especially easy. Modified copies of PaperClip are used for maintaining mailing lists. Since most people are familiar with word processors, learning a database program is unnecessary. Large mailing lists can be



Gazette editor Robert MacLean, author of this story, writes a column on his office 130XE. He also uses a 256K Atari 800XL for his databases.



The Atari XE Game System is popular at the Gazette, with an extension cable for the detachable keyboard. Also added was a luminance output for clearer text display on a monochrome monitor.



If a small computer can do the job, then why use anything more costly?

searched quickly, edited, and printed with ease.

With a modification program by Dr. Warren Lieuallen, which we found on CompuServe, PaperClip can achieve a text buffer of 224,000 bytes (800 pages, double-spaced) when used with a 256K Atari.

Many programs have been written and modified for use by the paper, most of which are in Atari BASIC. One small BASIC program grew into a huge program used to keep track of distribution, which is through 50 youngsters who deliver the papers. The program calculates their pay, keeps track of papers, advertising inserts, routes, and delivery dates, and prints messages at the bottom of each carrier's pay slip. It even prints mailing labels for paychecks. The program also prints out a summary for the Gazette's accountant.

OUR ATARI XEGS

SynCalc is our choice for some accounting tasks, including a cash flow spreadsheet and some information for the circulation department. SynFile + and the public domain DataBase II are used for lists. **Antic**'s V-Graph (January, 1987) is used to chart the Gazette's growth. We use Atari DOS 2.5 and SmartDOS because they are easy to learn

In addition to our 800XL and 130XE computers, the Gazette also uses an Atari XE Game System because we liked the separate keyboard. An extension cable was added immediately.

However, we were disappointed that the XEGS had no luminance output for monochrome monitors. The color output just wasn't clear enough when long hours are spent staring at a screen. Fortunately, Larry Copenhaver of The Computer Room in Kansas City made a quick modification to the unit which produces a highly readable screen output in monochrome. The parts to do this cost a whopping 40 cents! Copenhaver also developed the 256K memory upgrade used by the Gazette.

The XEGS contains the game Missile Command, of course. And while nobody at the Gazette admits playing it, a scoresheet with everyone's name and highest score is known to exist.

THE FUTURE

At a time when many megabytes is considered the only way to go, some people still remember that a computer is a tool used to do a job. If a small computer will do the job effectively and efficiently, why use anything more costly? The Gazette may purchase a computer suitable for desktop publishing, But we still won't give up our 8-bit Ataris. Looking forward with an eye on costs, folks at the Gazette dream of a series of desktop publishing stations, each with a laser printer.

If the Atari ST is as effective with regard to cost and performance in the future as the 8-bits have been in the past, you'll be seeing more Ataris at the Gazette office.

Johnson's County Gazette
1004 Winterbrook
Olathe, KS 66062
(913) 782-1133

GAZETTE MODS

The hardware modifications used by the Gazette include:

256K RAM Upgrade—increases RAM from 65,536 bytes to 262,144 bytes.

Omni-Mon—hardware enhancement that lets you examine and modify memory or the 6502 (main chip in an Atari 8-bit computer) registers as well as reading and writing to disk without DOS. It also contains program debugging tools, including a machine language disassembler.

Omni-View—hardware enhancement that produces an 80-column display on monochrome monitors with some software.

Happy 1050 disk drive—an Atari 1050 drive with a modification manufactured by Happy Computers, Inc. that lets you convert IBM and compatible disk text files for use on Atari computers or vice versa.

U.S Doubler—modification to a 1050 disk drive that allows true double-density disk operation.

A fan that blows filtered air into an Indus disk drive was also added. When Indus drives are used where free air movement is restricted, they may become quite warm and do some pretty strange things. The fan solved the problem for the Gazette.—ROBERT MacLEAN

Semaphore

Atari raises the flag. **By Howie Wishart**



Although Morse Code training programs are fairly common, I have never seen a program for practicing semaphore flag code. As a former signalman in the Canadian Navy, I taught semaphore communications aboard ship and in classrooms. And when I bought my original Atari 800XL in 1985, a primitive version of this program was my first serious attempt at programming.

SEMAPHORE INTRO

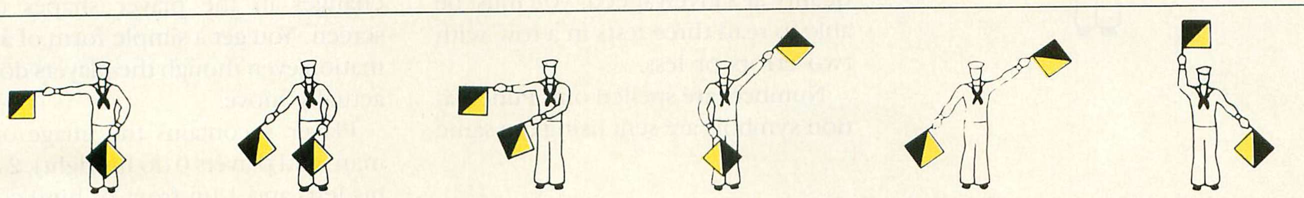
Semaphore is a means of line-of-sight communication dating from the early 1800s. It's easy to learn. No special equipment is required. But operators usually hold small flags when sending during daytime, while flashlight wands are used at night. Semaphore is still a common system of short-range communications today. It is also of interest to cadet organizations, scouts and others.

The basic technique of semaphore is to hold each arm at one of eight possible angles—straight up, straight down, left, right, or one of the diagonals. The various arm position combinations represent the 26 letters of the English alphabet.

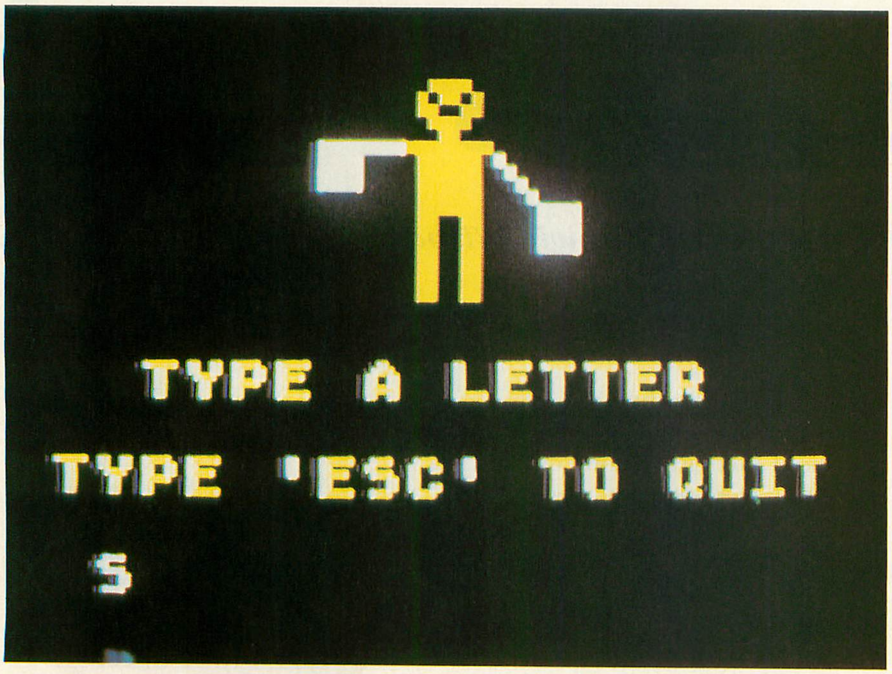
Note that what you send is the *reverse* of what you see. The man in the picture sends the letter B with his right hand, and you would send a B with your right hand. Swing your arms from letter to letter to spell words. Hold both arms down and crossed in front of you to signal the space between words. Rhythm and accurate angles are important.

The code for Error is EEEEEEEE—then send the misspelled word again.

To get the other operator's attention, flap your arms up and down, like a bird. He'll wave back when he's



Can't find anybody to send you semaphore flag messages for reading practice? Your Atari can be an expert signalman instructor. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.



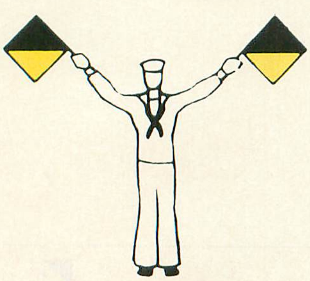
Type a letter and see it transmitted with the semaphore flags.

ready to read. After reading your message, he'll hold his arms out horizontally to show the letter R (for Roger). Or he'll send you a question mark if he missed it. That's all there is to semaphore code. After you learn the letters, it's easy—and fun.

Sending speed is measured in words per minute (wpm)—15 wpm is the minimum standard in the NATO navies. But good operators can send and receive at over 30 wpm. To qualify at a given speed, you must be able to read three tests in a row with two errors or less.

Numbers are spelled out. Punctuation symbols are sent using the same combinations of letters as Morse Code. See below:

Period	AAA
Comma	MIM
Question mark	IMI
Hyphen	DU
Slant or fraction bar	XE
Colon	OS
Left parenthesis	KN
Right parenthesis	KK
End of message	AR



To get the other operator's attention, flap your arms up and down, like a bird.

THE PROGRAM

Type in Listing 1, SEMAFOR.BAS, check it with TYPO II and SAVE a copy before you RUN it.

Semaphore has three teaching features: (1.) You can type a letter on the keyboard and see the flag code displayed; (2.) Beginners can test on random five-letter groups; (3.) Experienced readers can test on messages taken from memory at random.

In each case, the transmitted letter is displayed onscreen in large Graphics 2 text. You can choose test speeds from 10 to 30 words per minute. After a test, you can get a printout to find out how well you did.

The program works by making the computer think that PM$ is in Player-Missile memory instead of in the variable value table. Thus, changing the contents of PM$ causes immediate changes in the player shapes onscreen. You get a simple form of animation even though the players don't actually move.

Player 3 contains the image of a man, and players 0 (to his right), 2 (to his left) and 1 (in front of him) contain constantly changing data to display his arms in the various positions of the semaphore alphabet. This same technique, using all five players lined up across the screen, could be used to teach the sign language alphabet for hearing-impaired.

Because timing is so important, I have avoided using FOR/NEXT loops as much as possible, PEEKing and POKEing RTCLOK (memory location

20, $14) to control the length of time that each character is displayed. This means that the program runs at the same speed in Atari BASIC as it does in BASIC XL's fast mode, without recalculating the speed logic.

PROGRAM TAKE-APART

Lines 50-61 load the appropriate part of PM$ with a particular flag shape. Lines 32 65-90 call lines 50-61 as needed to build alphabet letters, each of which needs two flags. Line 95 produces a raspberry noise in case of bad user input. The term X=1^1^1^1 provides a suitable delay without a FOR/NEXT loop.

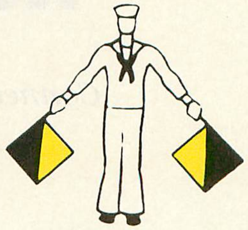
The routine at 1000-1110 sends tests. RTCLOK is POKEd with the delay value D, the character is constructed and sent, while the letter is PRINTed either visibly or invisibly at the lower left of the screen. The subroutine at line 1100 monitors RTCLOK until the necessary delay has passed, then RETURNs to erase the flags (but not the little man) and send another character. Line 1010 prevents flicker in case of two consecutive spaces. Line 1030 sends a half-length space between double letters in a word. Line 1080 walks the little man offscreen at the end of the test.

The routine at 2000-2110 reads the keyboard and displays the letter that was typed. Anything outside the range A-Z is treated as a space. As with the test routine, each character is also PRINTed at the lower left corner, either visibly or invisibly. Pressing [ESCAPE] returns you to the menus.

The menus at 3000 and 3500 let you select your option, set up variables for visible or invisible text by POKEing COLOR 0 (memory location 708, $02C4) with either 12 or 0, and calculate a D value to be POKEd into RTCLOK to control the speed. Prerecorded tests are READ into T$ here. Five-letter random tests are generated at lines 4000-4010. The character string NRURNRURNRUR creates the arm-flapping callup routine at the beginning of a message.

After either a random-letter test or a preset message test is completed, the program proceeds to the Print Menu at lines 3800-3920. A channel is opened to either the printer or the screen, as chosen by the user. T$ is printed without wordwrap and with punctuation displayed as letter combinations. If a screen display was selected, the program waits for a keypress. Otherwise execution resumes with the main menu at line 3000.

Lines 5000-5080 perform the overlay of P/M memory onto T$, the variable holding the message to be sent.



The basic technique of semaphore is to hold each arm at one of eight possible angles.

These lines set up P/M graphics (double-line resolution, all players double-width) and generates a sequence of the little man walking onscreen from the left with flags at his sides, ready to send. I used Graphics 18 to allow for the largest possible text display and to display visible instructions even if the transmitted characters are invisible.

Lines 6000-6240 initialize and fill the necessary strings. PM$ must be the first string named and used in order for the program to work properly. P$ and T$ are used variously to manipulate the text message. K$ is a series of blanks used to quickly wipe out part of PM$ and so erase players 0-2 (while leaving the little man untouched in Player 3) between letters.

The preset tests commence at line 7000, with tests starting 10 program lines apart. The program READs C to determine how many data strings follow. Then it reads each string and adds it onto T$. Adjust the RESTORE statement in line 3550 if you want to renumber this section. There are currently 10 tests. If you add more, change the * 10 in line 3550 to reflect the actual number of tests in memory.

Semaphore requires 16K to run, with the 10 existing message texts taking up about 2K. So there is plenty of room for adding many more messages to ensure variety. ▲

Thirty-two-year-old retired Canadian naval signalman Howie Wishart has been programming for three years. This is his first publication in **Antic**.

Listing on page 71

Newsroom Converter

Connect Print Shop, Koala and more . . . ***By John French***

Newsroom Converter is an easy-to-operate program that converts any Print Shop icon or Atari Graphics 8 picture into Newsroom format. It also converts Newsroom photos into Graphics 8 picture files that can be used with many popular Atari art programs. The BASIC program works on all Atari computers with at least 48K memory and disk.



I purchased the Newsroom page design program from Springboard Software after reading about it in the July 1988 **Antic**. The **Antic** review said Newsroom couldn't use icons from Broderbund's popular Print Shop software or from any other third-party graphics formats. Well, here's the cure to that problem. Newsroom Converter is a program that will convert any Print Shop icon or Atari Graphics 8 file into Newsroom format. Not only that, Newsroom Converter also transfers any Newsroom image into Graphics 8 format.

This new access enables you to use *Rapid Graphics Converter* (**Antic**, November 1985) to switch other types of Atari picture files to Graphics 8 format for loading into Newsroom Converter. Or after you convert a Newsroom image into Graphics 8, you can change it into a Micro Illustrator file with *Rapid Graphics Converter* and then transfer it to Print Shop format with Graphic Shop ($19.95, The Catalog AP156).

GETTING STARTED

Type in Listing 1, NEWSCON.BAS, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing the special characters in lines 15-18, don't type them in. Listing 2 will create them for you. Type Listing 2, check it with TYPO II and SAVE a copy to disk. When RUN, Listing 2 creates these hard-to-type lines and stores them in a disk file called D:LINES.LST.

To merge the two programs, LOAD "D:NEWSCON.BAS" then ENTER "D:LINES.LST"—and remember to SAVE the completed program before you RUN it.

When you RUN Newsroom Converter, you'll see a menu screen giving you a choice of converting either a Graphics 8 or Print Shop file into Newsroom format, or converting a Newsroom image into a Graphics 8 picture file. The option for quitting returns you to BASIC.

NOTE: Newsroom automatically assigns a two-letter prefix to each type of file saved—BN, banner; PH, photo, PN, panel; PG, page. This system leaves room for six-letter filenames and doesn't recognize extenders.

If you'd like to convert other types of Atari picture files into Graphics 8 format for use with Newsroom Converter, this can be done with *Rapid*

Graphics Converter (**Antic**, November 1985). For best results, convert these other types of picture files into "Graphics Master" format.

GRAPHICS 8 CONVERSION

Insert a disk containing a Graphics 8 file and choose option 1. This brings up a directory of the disk and prompts you to enter the name of the Graphics 8 file to load. The default device is D1: (disk drive 1) so just type in the filename and the extender. If the file you want is on another disk, press [RETURN] and you will go back to the menu. You can then insert another disk and select option 1 again.

After the picture is loaded, frame the part of it you want to convert by using the left and right arrow keys. The part of the picture under the framing lines is included. After framing the picture and pressing [RETURN], you will be asked for a name for the Newsroom file. Enter the name you want *without* a device or extender because "D1:PH" is automatically included. Newsroom Converter will then save the file on a standard DOS disk in Newsroom format.

PRINT SHOP CONVERSION

Choose option 2, then insert a Print Shop graphics disk and press [RETURN]. NOTE: To load an icon supplied on the Print Shop disk, first load it into the Print Shop Graphics Editor and save it on a disk formatted with Print Shop. A directory of the Print Shop disk with each entry numbered will be shown on the screen. You can use [CONTROL] [1] to stop the screen from scrolling. Now enter the number of the Print Shop icon you want to load. Entering 0 returns you to the menu.

Storing the file in Newsroom format is the same as it is with the Graphics 8 files, except you don't need to frame the picture. Also, you'll be asked if you want it in Double Height or not. As you can see in *Fig-*

Byte	Description
1-2	255,255—found on most binary files.
3-4	Starting Address (LSB/MSB); usually $A000 hex.
5-6	Ending Address (LSB/MSB); varies with picture size.
7-8	File Length in Bytes (LSB/MSB).
9	Top Y coordinate (in this case, 0).
10	Bottom Y coordinate.
11	Left-most X coordinate plus 8.
12	Right-most X coordinate plus 8.
13	0.
14	255.
	The rest of the Newsroom file is picture data.

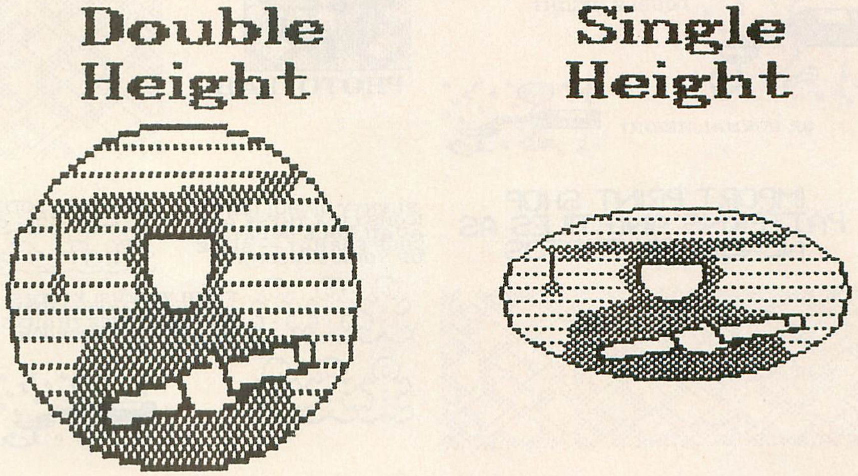


Figure 1

WORD PROCESSOR TEXT INTO NEWSROOM

In the Houston ACE July 1988 newsletter, Antic came across this useful undocumented technique for loading word processor text in Newsroom.

Write some text with Newsroom in the font of your choice, save it, then load it into your word processor. You will see some formatting codes at the top of the file. Delete the sample text and save those codes as a template file for your future Newsroom articles. Just remember that each Newsroom text panel can only hold 21 lines—about 800 characters, depending on your font.



ure 1, Double Height is closest to the original shape when printed on paper. Some shapes look all right at normal height and take up less space on the Newsroom Panel.

NEWSROOM IN/OUT

You can now load your converted pictures into the Newsroom Photo Lab or Copy Desk quite safely. But I suggest loading the picture into the Photo Lab and then storing it on a disk formatted by Newsroom.

WARNING: Storing anything on your DOS disk from within the Newsroom program can be *disastrous!*

Option 3, using Newsroom Converter to transfer a Newsroom image into Graphics 8 format, is similar to option 1 except for reversing the order of source and destination disks.

After you have converted a Newsroom image into Graphics 8, you can change it into Micro Illustrator or any other standard Atari graphics format with *Rapid Graphics Converter* (**Antic**, November 1985). And then Micro Illustrator or Micro-Painter files can be converted into Print Shop format with Graphic Shop ($19.95, The Catalog, AP156).

PROGRAM TAKE-APART

Lines 15-17 contain the headers for the Newsroom file. HDR1$ stands for the Newsroom header bytes used for Single Height Print Shop icons. HDR2$ represents Double Height. HDR3$ is for the Graphics 8 screen (29 bytes wide x 168 bytes tall). As near as I can tell, the 14-byte Newsroom header is made up as follows:

Lines 20-90 contain the main menu. Line 100 ENDs the program and returns you to BASIC.

Lines 200-298 convert a Graphics 8 file to Newsroom format. Lines 300-390 convert a Print Shop icon to Newsroom format.

Lines 400-600 convert a Newsroom photo into a Graphics 8 file. I included this option for Atari 800 owners who would like to use the Newsroom images they see on bulletin and user group disks. Although 800 owners can't use Newsroom software, this option will let them use Newsroom images with *other* graphics software. *Rapid Graphics Converter* (**Antic**, November 1985) converts your Graphics 8 file into nearly a dozen other formats.

Lines 1000-1060 give you a disk directory of Graphics 8 files. Lines 2000-2020 contain the subroutine to LOAD or SAVE a Newsroom or Graphics 8 file. Lines 3000-3530 contain the subroutine that frames a Graphics 8 picture and calls a machine language program (ML$) to reverse the colors of that section of the screen. This must be done because the picture data in Newsroom files is inverted. In other words, a blank section on the screen would be saved as 255, not 0. You won't notice any color change onscreen, however, because the color registers are also reversed.

Lines 4000-4050 contain the subroutine to read a sector for the Print Shop DIRECTORY and LOAD operations. Lines 5000-5050 hold the error-handling subroutine.

John French of Oklahoma City has been a computer repair technician for 13 years. He began programming an Atari 800XL in 1983.

Listing on page 73

Ecclesiastic Atari

"Our XL is a godsend." **By Rev. Earl Smith**

The church's ability to keep track of its records and writings has come a long way since the days of the solitary scribe. It used to be a long, difficult task to reproduce a Bible or another document of religious significance. The church scribe would sit alone in a little cubicle meticulously copying each verb, noun and punctuation mark from one papyrus sheet to another. The job was time-consuming and often error-ridden.

Not so these days! With the advent of computers and photocopiers, the modern church office can handle large quantities of information quickly and efficiently.

At St. Paul-Trinity, our small United Methodist church in Elmore, Ohio, the main administrative problem we faced was how to incorporate the latest information-processing technology at the lowest cost. We certainly couldn't afford an IBM system or the expensive church software programs on the market at the time. The real question was, "What can we get for around $1,000?" The solution—an Atari 8-bit system.

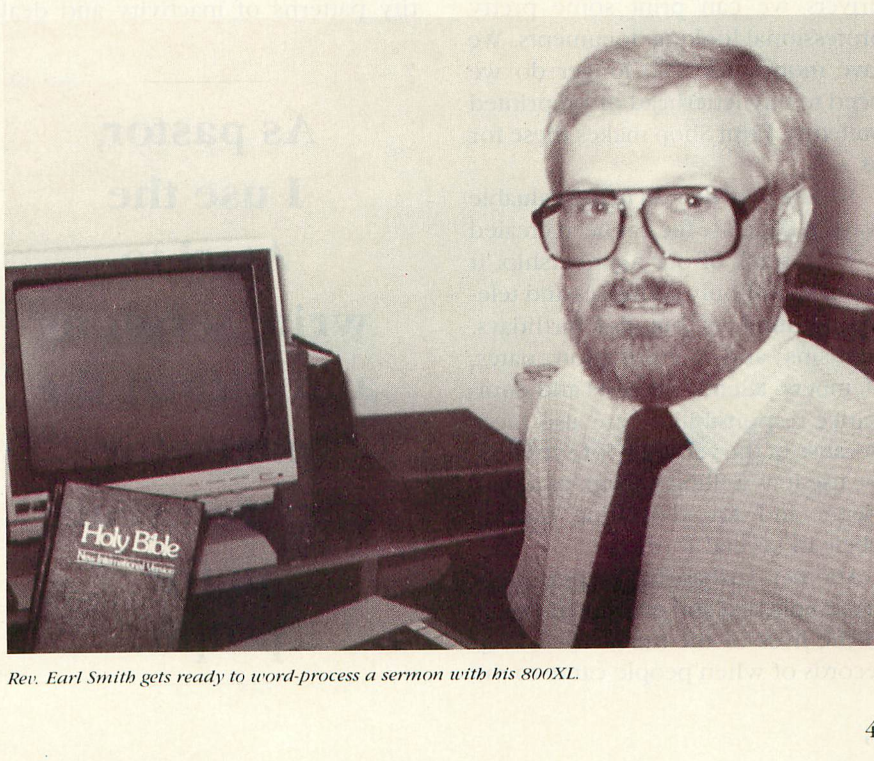
With some information under our belts and much hope, we walked out of the computer store with an Atari 800XL upgraded to 256K memory ($300), an Epson RX-80 printer (on sale at $200), an Indus GT double-density disk drive ($250), one box of blank disks and four programs—AtariWriter Plus, SynCalc, SynFile+ and Print Shop (about $40 each). We borrowed an old black-and-white television and were up and running by the end of the day.

That was three years ago. Since then we've added some more software, but we still use the old TV. The secretary and pastor save time, our records are more accurate than ever before and we have yet to return any of the equipment for repairs. Here's a look at what we're doing.

AtariWriter Plus and now PaperClip are our mainstays. It's amazing how much word processing a church office can generate. Business correspondence, newsletters, Sunday bulletins, meeting minutes and letters of celebration and condolence must be produced constantly.

As pastor, I use the Atari to write sermons and to format the pages for





Rev. Earl Smith gets ready to word-process a sermon with his 800XL.



A selection of the main tools used to keep this church functioning.

easy reference in the pulpit. I developed a system of gathering, logging and sorting illustration files to aid in sermon preparation. Since our secretary works for us only one day a week, I've been able to function better in that role myself because of the computer. I even taught myself to type because the Atari is so much fun to use.

With the availablity of such fine public domain programs as Roy Goldman's Daisy-Dot and Epson printer drivers we can print some pretty professional looking documents. We save money too! No longer do we need to buy letterhead or preprinted bulletins. Print Shop makes these for us.

We use SynFile+ in many valuable ways. A database file has been created to keep track of our membership. It includes not only addresses and telephone numbers, but also birthdays, baptisms and confirmation dates. Members' talents, interests and committee responsibilities are also filed. Because of the versatility of SynFile+ we use it as a filing system, as a mail merge and for generating mailing labels in several formats.

Another database file keeps track of major spiritual and emotional events in the lives of the members. I keep records of when people came to me for counseling, experienced a hospital stay or family death, etc. The Atari is a helpful aid in my pastoral care work.

We use the SynCalc spreadsheet as a budget worksheet and ledger. That's pretty basic. We also use it to keep track of Sunday worship attendance. One of the great problems a church faces is knowing when members begin to become inactive. By recording individual attendance on the Atari and reviewing it frequently, we can identify patterns of inactivity and deal with them constructively.

We also use several graphics programs. We generate the front cover of our Sunday bulletins with Print Shop, plus making get-well cards, thank-you notes and sympathy cards. Several public domain disks contain Print Shop graphics of church symbols that help in making these cards spiritually meaningful.

AwardWare from Hi-Tech Expressions helps us develop certificates for teacher appreciation, student recognition, and Vacation Bible School participation, to name a few. We use Typesetter and Page Designer from XLEnt Software for attractive church newsletters. With the varied 8-bit resources available on the market and in public domain these days, desktop publishing is within our reach.

Religious education is a primary task of the church. Many public school programs translate well for church learning. Some small software companies are specializing in this area. Bible Baseball by Davka is an exciting trivia game that teaches Bible facts in a fast paced, colorful way. And using Create-A-Quiz, I've been able to stimulate my confirmation class students into learning church history and policy—usually quite boring stuff.

All in all, the Atari has been a godsend for us. Professional church software costs far more than the price we paid for this entire package. Except for some fancy bells and whistles and an 80-column screen, they do little more than what we can accomplish. And since I have an old reliable Atari 800 at the house, I can carry unfinished business home with me (and occasionally carry to work Star Raiders II or Orbit).

Machines with mega-memory may be the wave of the future, but for the 350-member congregation of St. Paul-Trinity, the Atari 8-bit serves us well. SynFile+ alone helps tell the story. With our 256K of memory we can hold 5,457 separate files. When the membership grows that large, we might just consider buying an ST. ▲

As pastor, I use the Atari to write sermons and format the pages for easy reference in the pulpit.

Medal for an Atari

XL cuts through red tape. By Chester Cox

Taegu Air Base is a combination airport/airbase operated by the Republic of Korea Air Force. I was stationed there for two years—and owe my survival to Atari and Dan Moore.

My squadron was a maintenance squadron dedicated to keeping F-4 jet fighters (later F-16s) in flying order. As Noncommissioned Officer in Charge of Administration, my job was to keep track of about 400 enlisted people and three officers, taking care of their personal and professional needs.

That meant processing leaves, passes, awards and decorations; creating orders; arranging and monitoring telephone calls back to the States; preparing (and rewriting) performance reports and nominations for awards and promotions; preparing and managing commander calls, training manuals, operational publications, files and suspenses; and handling disciplinary problems and actions, as well as family and stateside emergencies. And just about anything else that came up, or the commander needed.

My weapon against the forces of exhaustion was (and still is) an Atari 800XL with a 256K memory upgrade. My ammunition was PaperClip, the classic word processor, and SynFile+, the classic database, both by Dan Moore. (*PaperClip was co-written by Steve Ahlstrom.*—ANTIC ED)

In the beginning, we literally had nothing. There was no office computer, my Atari was still in Oklahoma, and there were no records at all! The administrative building had blown up just before I arrived—seems no one knew that the Japanese buried airplane fuel deposits there during their occupation of Korea.

I immediately put in a request for an office computer and was informed that it would be about a year before its arrival. Our workload (as shown in a "manpower study" by the Pacific Air Force Headquarters) required at least three people, preferably four. We had two—an inexperienced airman and me.

For six months, we attempted to organize everything enough to *find*





U.S. Air Force SSgt. Chester Cox really did get a medal for his work with an Atari. His family and former commanding officer shared the ceremony.

Headquarters completely erased all their data files. According to their records, all our reports were 40 years late. Only my squadron met deadlines because I put everything on the Atari.

things, at least. The days were stretching to 15 hours each, with many weekends spent at the offices. Our headquarters was at the other end of the country. Quite simply, their records and ours didn't quite match up. Everything was being handled through the mail, and we had no immediate access to daily records.

In September, my Atari 800XL arrived. Normally, it would have been used to help me relax after a tough day. But what it became—quickly—was the office computer that the Air Force couldn't deliver.

It was portable enough to carry on the bus. I immediately began putting all data relating to the squadron on single density disks with SynFile. It took all the rest of my spare time for three months. Meanwhile, I had made templates on PaperClip for every document that passed through the squadron. By the time December rolled around, I was able to take a day off—the job was completed.

And it was completed just in time, as it turned out. Our headquarters at Osan had managed, with their expert, expensive, superior computers and technicians, to *completely erase* all the data in their tape files dealing with performance reports and decorations. Suddenly every unit under Osan HQ was hit with "missed deadlines" that didn't exist—"computer errors," these were called.

My personal favorite was when the Personnel Office was positive that all our reports were *40 years* overdue! During the time that headquarters re-entered all the data, only *one* squadron in the entire country was able to meet deadlines, with all the correct data—dates, social security numbers, dates of enlistment, dates of return from overseas, etc. Because only one office had put everything on Atari disks.

It's amazing how many records you can get into SynFile+. It recognizes most memory upgrades and there was ample room for everything I needed. By the time I had typed the 300th entry, it started slowing noticably. But that proved little hindrance. Because it was *my* Atari, I was able to do some work at home—finally getting to see my family.

With my upgraded 256K memory, PaperClip let me keep around 2,500 40-column lines in my 800XL. With PaperClip's chaining capabilities, longer documents were no problem. For instance, the agreement between the Republic of Korea and the United States Air Force was typed, corrected, and saved on an Atari, then transferred to an MS-DOS computer.

Yes, we finally did get our office computer—a Zenith Z-100 with twin drives. I quickly discovered that I hated the user-hateful interfaces of WordStar and PeachText, so I continued to take most of my work home. Atari, PaperClip, and SynFile+ offered more power than the expensive setup in my office. All I sacrificed was a little speed. And anyone who has used MS-DOS databases without a hard disk can testify that the speed comes from the hard drive itself.

Today, my Atari is even more useful in my Air Force career in Denver. Not only have I learned more of what you can do with that extra memory—I love RAMdisks—but my 1050 drive has received a brain transplant. With the Happy 7.1 chip and software installed, I have been able to bring MS-DOS disks home and work with a truly user-friendly word processor.

If you are in the Air Force Reserves or National Guard in Colorado, your travel orders or training orders were probably processed on my Atari. In fact, a major at the Reserve Personnel Center prepared a videotape which trained people in the use of the Z-248 computer—adding animation and credits using his Atari own 800XL and a VCR.

I have access to powerful business computers and software on the job. Z-248, Burroughs, Enable, Lotus, Condor, Word, RBase, DBase, Multiplan—these are but a few of the places where our tax dollars go. People are impressed by those machines and software—even when they don't understand them, even when they don't quite work. Give me my Atari 800XL anytime. I've done more with it than any office with its more dignified computer ever has.

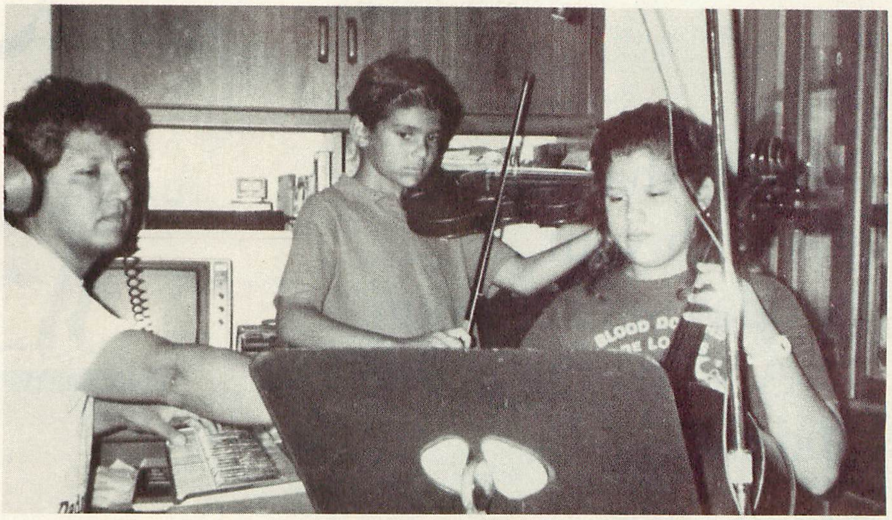
And I have an Air Force Achievement Medal awarded to me and my Atari to prove it.

Atari String Quartet

The 8-bit plays viola. ***By Joe Davis***

I was a professional violinist for about 10 years at various Nevada casino showrooms. In Reno and Lake Tahoe, I backed up headliners such as Sammy Davis Jr. and Danny Thomas.

When I got married, I told my wife that I would like to have my own string quartet some day. Well, Lisa, the oldest of my three children, didn't take to the classics, though the other two did to some degree. I still wanted to be able to play some quartets at home, but alas, we were short one viola player.



Joe Davis and two of his kids get ready to make music along with their upgraded Atari. A corner of the 800XL can be seen beneath the synthesizer keyboard.

That's where my computer and electronic music gadgets come in. I have an Atari 800XL computer with a 256K memory upgrade, Atari 1050 and Indus GT disk drives, and a Panasonic printer. I also own a Korg Poly 800 synthesizer and the Hybrid Arts MIDImate III MIDI interface. My latest toy is a Roland MT-32 Modular synthesizer, which is like having eight independent synthesizers hooked up to the Korg.

This system provides an assortment of instruments and even a kind of mini-recording home studio. Now I can have violins on one track, bass on a second track, brass on a third and so on down the line until I use up all available tracks.

ATARI PLAYS VIOLA

So we have our string quartet. First I play my son's violin part so he can practice it until he gets it right. Next I select the cello patch—I believe there's a choice of three different types of cellos—and play my daughter's part, again letting her practice until she gets it right. Then I play our missing link, the viola part, and whammo—our string quartet! When we perform "live," I play first violin.

Obviously, it's not like the real thing. I don't look at my keyboard as a substitute, but as a working tool. I also do some composing on these little boxes.

Although the Atari 1040STs and Megas are the current musicians' dream machines, I can still do some very powerful things with my 256K Atari 800XL. I only wish some companies would upgrade their software to acknowledge the extra memory. Also, does anyone out there know of a good program that lets you write and print music manuscripts on an 800XL?



I'm now employed as a systems operator on an IBM/38 at San Bernardino Community Hospital in Southern California. But when I am off work I return to my MIDI, synthesizers and my Atari String Quartet.

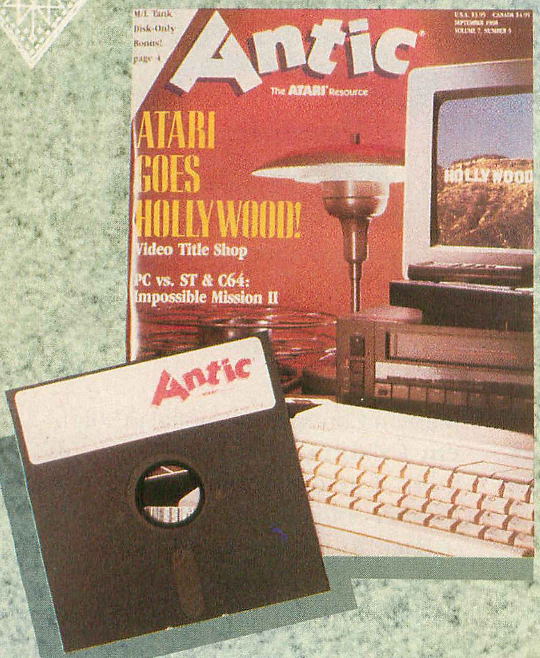
Back to the keyboards. Let's see, how did that go again? Oh yes. . . Ready, Stacy and Joey!

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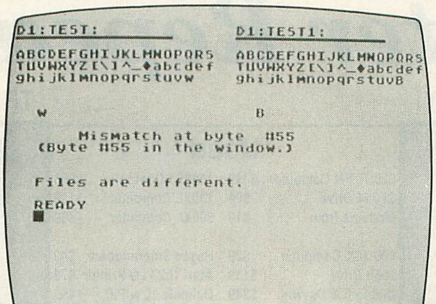
Version Detective

Sanity tool for sysops and programmers. **By Jeffrey Summers, M.D.**

Version Detective quickly determines whether or not two files are identical. This is a great aid for BBS sysops and users group librarians who must weed out duplicate files to conserve disk space. This BASIC program works on all 8-bit Atari computers of any memory size, with disk drive.

Since DOS filenames are limited to less than a dozen characters, it's easy to imagine how a users group disk librarian or a BBS sysop can wind up with several files called MENU.EXE, READ.ME and even MYPROG.BAS. It's then up to the librarian or sysop to search and destroy these duplicate files. But how can you tell if two like-named files are really different? There's nothing else to do but personally examine the file listings side-by-side. And if you need to compare Machine language files, which cannot easily be LISTed, you've really got a problem.

Programmers also face similar problems. Writing a program is usually a series of approximations. Rarely will the program work as expected the first time around. Then after a few bugs are found, others rear their ugly heads. So it becomes a programmer's challenge simply to keep track of which is the most current version of a program in development—and what



changes were made from the prior versions. This becomes especially important when you discover that your "fix" didn't work and you want to go back to the previous version.

To compare disk files easily and without hassles, I wrote Version Detective. This BASIC program compares two files at machine language speed and displays the first mismatch. Version Detective will work with *any* type of file. It will compare pairs of files written in any programming language, text editor, or word processor. And there is *no limit* to the length of the files. In several tests, Version Detective compared two 200-sector disk files in less than 90 seconds.

GETTING STARTED

Type in Listing 1, FILCOMP.BAS, check it with TYPO II and SAVE a copy before you RUN it.

When RUN, Version Detective will display a disk directory and ask you for the name of the first file to compare. If your file is on disk drive number one, you needn't type the "D1: prefix. Just type the filename and press [RETURN].

If you need to see a directory of another disk, place it in drive #1 and press [RETURN]. Version Detective will display a fresh directory and then ask you for the second filename.

Version Detective will quickly compare the two files byte-by-byte and stop when it finds the first mismatch. It will also tell you if one file is longer than the other.

When the first mismatch occurs,

Version Detective displays the mismatch in a pair of error windows. Each window shows a 256-byte block of the file. The left window corresponds to the first file, the right window shows the second file.

Each window is approximately 19 characters wide and 14 characters tall. Any [RETURN] symbols will make the window taller. If your file has an abundance of [RETURN]s, the tops of your error windows may scroll off the top of the screen.

The mismatched byte is displayed below its corresponding error window. Version Detective tells you the location of the mismatch, as well as the position of the mismatch in the error window. For example, a sample error report might read: "Mismatch at byte #515, (Byte #3 in the error window.")

SAMPLE CASE

Let's go through an example. Type the following program lines:

```
10 REM THIS IS A TEST OF
20 REM THE VERSION DETECTOR
30 FOR I=1 TO 1000:REM THE OUTER LOOP
40 FOR J=1 TO 5:REM THE INNER LOOP
50 PRINT I*J;" ";:REM PRINT PRODUCT
60 NEXT J:REM END OF INNER LOOP
70 PRINT :REM KEEP THINGS NEAT
80 NEXT I:REM END OF THE OUTER LOOP
90 REM THIS IS THE END
100 END
```

LIST the program to disk with the filename "D:TEST1.LST" and then change END to XYZ in line 90:

```
90 REM THIS IS THE XYZ
```

LIST this modified program to disk with the command:

```
LIST "D:TEST2.LST"
```

RUN the Version Detective program. Type TEST1.LST as the first filename and TEST2.LST as the second.

Version Detective will quickly compare the listings and display two error windows. The program will display an E beneath the left window, and an X beneath the right one. This is the first mismatch. Beneath this, Version Detective will display:

Mismatch at Byte #281
(Byte #25 in the window)

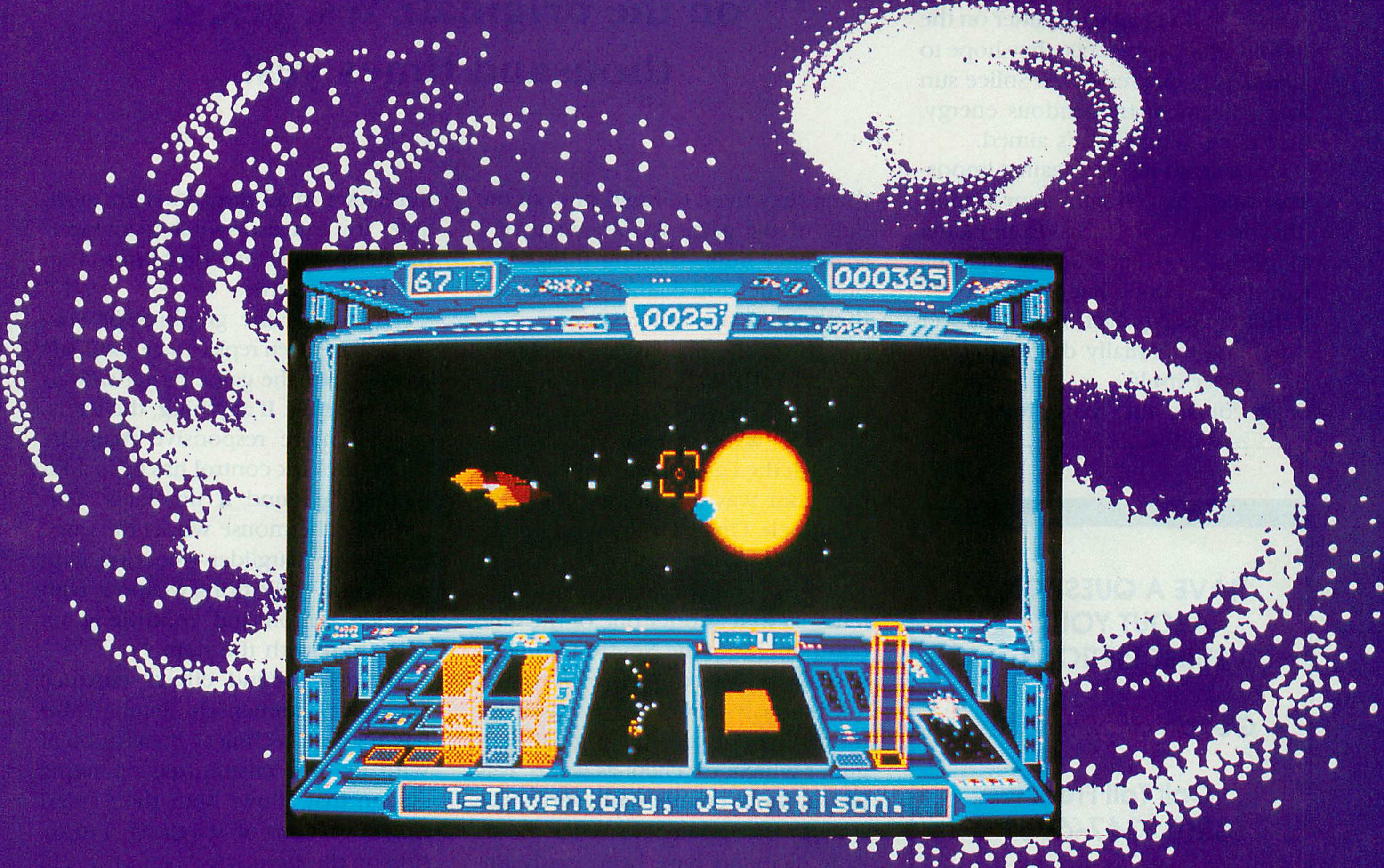
The files TEST.1 and TEST.2 are identical through the 280th byte. The first mismatch occured at byte number 281, where the first file had an E and the second file had an X. You can see this for yourself by examining the 25th byte in the error windows. ▲

Rochester, New York physician Jeffrey Summers is also represented in this issue with the Extra Disk Bonus Antic Data-X, Revision B.

Listing on page 70

ST Entertainment

Complete ST Game Software Resource — December 1988



STARGLIDER II

Improvement on an outstanding original

In the computer entertainment biz, sequels can be as risky a proposition as in films. However, just as some film sequels ("Godfather II," "Star Trek II: The Wrath of Khan") can expand and improve upon the original, so it is with software. Since the original Starglider, released almost two years ago, is still one of my favorite games and perhaps the finest ST arcade game overall, it was with a great deal of trepidation that I first booted **Starglider II**. Did two years lead to a major improvement? Yes, yes, a thousand times yes!

In the original Starglider you fought Hermann Kruud and his elite Egron armed forces as they attempted to

conquer your home planet of Novenia. Piloting a lone AGAV vehicle, you kept his stompers, tanks and saucers at bay, ultimately destroying Kruud himself.

Now the Egrons are back, more dastardly than ever. Rather than launch another direct assault on Novenia, they have successfully conquered the five planets of the Solice System. By constructing collection stations and a giant transmitter on the moons of those planets, they hope to channel the power of the Solice sun into a beam of tremendous energy. And guess where that's aimed.

Once again it's you against impossible odds, as you pilot your vehicle (this time it's the Icarus) from planet to moon and back again, fighting Egron patrol ships, knocking out collection stations (which are rebuilt over time) and eventually destroying the transmitter itself.

Of course, the transmitter is no pushover. In fact, the only weapon that will destroy it is a neutron bomb. And the only way to get one of those is to have it constructed by the scientists of Apogee (where the game begins). Naturally, they don't have everything they need to build one, so the bulk of the game is somewhat of a scavenger hunt—finding things like nuclear fuel and diamonds scattered throughout the Solice system.

Is this a major improvement on the original? Yes, yes, a thousand times yes!

Most of the planets are inhabited, and the inhabitants can be contacted only at Service Depots far underground. While battling your way through the Egron defenses, you must find your way into a complex maze of tunnels. Once you arrive at a Service Depot, the natives will be able to replenish one of your weapon systems, as well as offer one of the nine components of the Neutron Bomb—in trade for something else, of course.

Obviously, Starglider II has a lot more depth than the original Starglider which, excellent as it was, was just a shoot-em-up with very little strategy. The good news is that the arcade elements have been vastly improved as well.

The Icarus craft has twice as many weapons systems as the original AGAV vehicle, including lasers, Time-Warp Cuboids, Homing Missiles and the Neutron Bomb itself. In the original, you could regain energy only by skimming along power lines—a tricky maneuver. In Starglider II, there are *five* different refueling techniques including my favorite—flying as close to the sun as possible to gather excess energy without melting. The Egrons are a proportionally greater threat too, with their original arsenal doubled.

The flat-looking cockpit display of the original has been improved and now includes 3-D bar graphs indicating the status of weapons and shields. Standard view is out-of-the-cockpit, but views in all directions are available. You can also switch to an external perspective and view yourself in the heat of battle.

The wireframe graphics of Starglider have been replaced by solid 3-D models, but the game hasn't slowed down one bit. If anything, the Icarus is even more responsive than the AGAV. Joystick control has been added, but I found it unwieldy. Fortunately, the mouse works the same here as in Starglider—steering with the mouse while firing weapons with the left button and controlling acceleration with the right.

Digitized sound effects enhance Starglider II immensely. Rainbird also has made a technical breakthrough with its own customized operating system that allows both the ST and Amiga versions of Starglider II to reside on the *same disk*! Not only will more dealers carry the program, but it may usher in a new generation of Atari/Commodore flippies.

To say that I highly recommend Starglider II is an understatement. Rarely does a program achieve such high standards in graphics, sound, story or playability. It deserves a place in every ST game library.—HARVEY BERNSTEIN

$44.95, color. Rainbird Software (Mediagenic), P.O. Box 227, Menlo Park, CA 94026. (415) 322-3996.

ST Games Gallery

Speed Buggy, Death Sword, Global Commander, and more,

GLOBAL COMMANDER

As **Global Commander,** your goal is to keep the peace between 16 nations and to prevent nuclear war. The game won me over as soon as I started playing, although the manual looked complicated at first.

Global Commander is actually easy both to learn and to play. You sit before a command console in an orbiting satellite, receiving information about the various nations on Earth in the form of memos, letters, intercepted radio signals and messages from your Big Bird spy satellites. Updated bar graphs show each nation's economic, technological and missile status. If a nation falls too far behind in any of these categories, it might start a war to get what it needs.

Your Strike Force cools off trouble areas fast.

You'll receive requests from nations for food, technology or missiles. You can agree, disagree, or ignore the request. Your responses make the difference between peaceful coexistence or nuclear annihilation.

You have some powerful options to help keep the lid on. You can send letters requesting certain actions from a nation. For example, you can request that Canada send Pakistan food. If the nations involved choose not to listen, you have a more forceful tool. The UNN Task Force is an elite army that you can send to any problem country at a week's notice. (A turn basically takes one week.) That nation will become much more receptive to future requests.

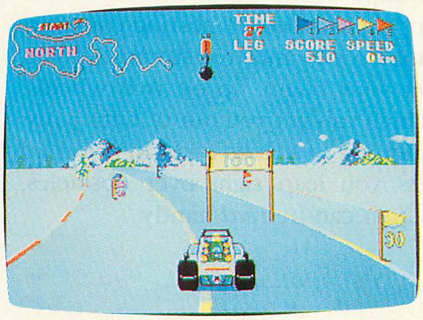
But eventually even the Strike Force may not be able to cool things down quickly enough. When war comes, you have a last line of defense—six laser-armed SDI satellites. You can only hope the warring countries destroy all the missiles.

Each week your performance is evaluated by the UNN council, with ratings from Excellent to Disastrous. If you do very poorly, you may be recalled to Earth. Any nation can also call for a vote of confidence, and if the majority gives you a thumbs down, the game is over. A game can be saved to disk (which I like), so if you lose, you can start from your previously saved position.

Global Commander comes on a single-sided disk with a clear and humorous instruction manual. There is also a map of the world with flag markers to help you keep track of which nation is threatening which.

I think Global Commander is one of the 10 most entertaining ST games of the year. I recommend it to anyone who appreciates a good strategic thinking game.—JOHN MANOR

$39.95, color. (Distributed by Electronic Arts.) Datasoft, 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922.



SPEED BUGGY

Speed Buggy, a car-driving game translated from Tatsumi's arcade hit by Data East, is a delightfully playable, graphically excellent gaming experience. It's easy to control and lots of fun.

Your perspective is from above and behind your buggy. You control the buggy with your joystick—steering by moving the stick left and right, and accelerating and slowing down by pressing the stick up and down. You can shift between high and low gear by pressing the trigger.

You have your choice of five different tracks which vary not only in the number and tightness of curves, but

also in the number of obstacles. After you select a track, the race begins. As in similar games, the object is to complete one lap of the course in the time alloted. If you're successful, you get another chance, but this time the track is littered with more obstacles.

There are flags on and beside the road. Running over a flag gives you its point value. You can even get bonus points by running them over in order (although that order is never explained). There are also larger banners, worth up to 500 points, and even bonus banners worth extra time. The more valuable banners are hard to reach because of the obstacles, but it's easier once you learn the tricks. After all, a buggy doesn't have to stay on the road!

The obstacles come in a number of flavors: trees, rocks, blockades, barrels, even stretches of water. Running into an obstacle flips your buggy over (except for the water, where you disappear in a *splash*), costing you time. Small rocks and tree stumps let you get your buggy up on two wheels, which can get you out of tight jams. Running over logs lying in the road lets you leap right over obstacles, which can be *real* handy.

The difficulty increases smoothly, so you won't be overwhelmed.

The graphics of Speed Buggy are wonderful. The obstacles are highly detailed and the scrolling of the scenery is smooth and very realistic. The tunnels are impressive, and the street lamps roll past without a hint of jumpiness in their motion. This is an impressive job of programming, and the smoothness and reality of the graphics just adds to the enjoyment.

The other thing that recommends Speed Buggy is its playability. Before long, you'll be able to race multiple laps. The difficulty increases smoothly, so you won't be overwhelmed. I do wish it would save the high scores to disk, but that's a minor complaint. All in all, this is a great driving game. —DAVID PLOTKIN

$44.95, color. Data East, 476 Needles Drive, San Jose, CA 95112. (408) 286-7074.



DEATH SWORD

It's rare when a game shocks me, as **Death Sword** managed to do. But I'll explain that one later. First let me say that this sword fight game is the best available on the ST.

The concept is simple enough. Two musclebound barbarians battle to the death in front of a variety of backdrops. One or two may play, although in the one-player game, your final opponent has magic powers which greatly surpass your own physical strength. This simplicity spawns the main drawback of the game. Once it is mastered—which should take no more than a week—there is little to merit its continued occupancy of your disk drive. But what a week you will have!

The control interface is exceedingly complex and hard to master. There are 16 joystick moves, ranging from a simple head butt to the intricate "web of death." Just trying to remember the correct combination of stick movements and button activation which results in a given attack or defense is a nearly insurmountable task, even though the moves are arranged more or less logically on the stick. It's better to find a few favorites and use them regularly.

The graphics are nothing short of remarkable—true arcade quality from the fluid movements of the warriors to the troll who trudges across the screen to drag away the body of the defeated after each battle. And that shocking thing I spoke of is an anatomically correct animated decapitation performed each time a kill is dealt out flawlessly. While this is just the kind of thing anti-violence groups scream about, I found it amusing and harmless—just don't let your parents see it, whatever your age.

Overall, Death Sword is a unique game whose limited playing life is more than compensated for by its superb graphics and fast action—definitely a cut above the rest. —STEVE PANAK

$39.95, color. Epyx, P.O. Box 5367, 600 Galveston Drive, Redwood City, CA 94063. (415) 366-0606.

BLACK LAMP

The kingdom of Allegoria has fallen on hard times since the lamps that once provided good fortune were stolen. The most powerful of these, the Black Lamp, is supposedly guarded by a dragon. The king tells Jolly Jack, the court jester who's in love with the princess, that he can have her hand in marriage if he retrieves the lamps. Equipped with five lives and a belt buckle that fires bolts of magic, Jolly Jack sets out on his mission.

Black Lamp is an interesting, well-animated arcade game with a control system that can be difficult to master. Of course, it's not just a matter of searching through the many screens

that make up the kingdom, locating the lamps, and bringing them back. It's much harder than that.

For one thing, there are plenty of nasties who want to fry poor Jack. These include bomb-dropping birds, slime-slinging witches, hammer-equipped musclemen and spear-wielding knights. They attack from all sides, and though they can be vanquished with the bolts from Jack's belt buckle, it's a big job to keep up with the onslaught. And the dragon guarding the Black Lamp is truly awesome.

You must steer Jack through the various indoor and outdoor screens, each with ladders, furniture, stairs and other items to climb or jump on. Some parts of a screen can only be reached in special ways. Some screens contain lamp receptacles, to which a recovered lamp can be returned for safety. Others contain the lamps themselves. There's food (which restores life-force), gems, weapons (which provide temporary power) and armor. It's also important to collect items which gain points, since a new life is awarded every 100,000 points.

The animation of the individual figures is realistic and smooth. The action doesn't slow down even when several objects are flying around at once. The backdrops are well-rendered, and Jack even skips along like you'd expect a jester to. The explosion sounds are typical, but quite good.

The dragon guarding the Black Lamp is truly awesome.

My only real complaint with Black Lamp is the joystick control system. For one thing, although Jack can jump, he can't duck, so he has no way to avoid incoming missiles. He moves left and right by pressing the joystick in those directions. But you must move the joystick diagonally for several critical movements, including jumping. Most joysticks are abysmal at finding the diagonal consistently. If you miss the diagonal, then Jack may walk off a platform, sometimes with fatal consequences.

Another problem is that Jack must be facing in the correct direction to walk through a door or climb a ladder. Unfortunately, the program doesn't always realize that Jack is indeed in front of a door, etc., so it refuses to let him enter. This can result in loss of a life, because sometimes the action is just *too* hot and heavy, and

the best strategy is to get the heck out of there—provided you haven't stumbled into one of those nasty screen positions where you *can't* leave. At that point you might as well abort the game, since you are reincarnated at the same point each time.

Actually, I like Black Lamp. Not only is it a game you can win, but high scores are automatically saved to disk for posterity. Once you're used to the awkward control system, the game becomes quite enjoyable.—DAVID PLOTKIN

$24.95, color. Rainbird Software, 3885 Bohannon Drive, Menlo Park, CA 94025. (415) 322-0412.

METRO CROSS

Metro Cross is scrolling game in which you race against the clock as you maneuver a small onscreen runner past tricky urban obstacles. Although initially interesting, this game quickly becomes tiring because all the courses you must negotiate are the same.

The view is from the side and slightly above, providing a pseudo 3-D effect. You control the runner with your joystick, changing his speed as well as moving toward the top or bottom of the screen. You can also make him jump by pressing the joystick button.

Metrocross is a race against the clock.

The playfield scrolls from right to left, with obstacles coming into view from the right side of the screen. Rolling barrels, vents in the sidewalk, hurdles, slime tiles and tires will slow you down, squash you, flatten you, or drop you down a hole. Skateboards, springboards and cans (which you can jump on to stop the clock, or kick for extra points) help you make the finish line in time and gain bonus points. And if you do reach the finish line in time, you stand and pant for a few moments before moving on to the next section of the course.

And if you don't make the finish line in time, you die—you actually turn into a skeleton and the game is over. Talk about strict! Although new obstacles and patterns appear in the upper levels, the basic gameplay remains similar and soon becomes tiresome.—DAVID PLOTKIN

$29.95, color. U.S. Gold (distributed by Epyx), P.O. Box 8020, Redwood City, CA 94063. (415) 366-0606.

ST NEW PRODUCTS

By GREGG PEARLMAN, *Antic Assistant Editor*

ROADWARS

You've been zapped into the 25th century, where the Galactic Federation rules the roost while robots and computers do all the work. Previous wars have so devastated the planet Armegeddon that the population must now live on the moons. A series of safe, convenient space roadways link the moons together. One day the main computer goes a little silly and starts tinkering with these roadways. That's where you come in. In **Roadwars**, you and your interplanetary tank will, in effect, perform road maintenance while sweeping the roads clean of vicious aliens—who were probably there first.

$29.99, color. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (800) 245-4525.

DAY AT THE RACES

Go to the races without leaving your house. **A Day at the Races** simulates all parts of horse racing, from buying and selling horses to choosing jockeys to placing bets to the race itself. You and as many as 14 other players have up to 500 horses and 50 jockeys to choose from, each of which has distinct attributes and abilities that affect the outcome of each race—which is run in real time.

You'll use the racing form, racing program, cheat sheet and tote board to help determine your bets. Special bets include the Daily Double, Exacta, Quinella, Big Exacta, Trifecta and Jackpot.

$39.95, color. Team Software, P.O. Box 7332, Washington, DC 20044. (703) 533-2132, (603) 679-1211.

8-BIT EMULATOR

Now you can run all your favorite unprotected Atari 8-bit software on your ST with **ST Xformer**, Darek Mihocka's much-heralded 8-bit emulator. Several different 8-bit "memory sizes" are available, as well as the ability to run Apple II and Commodore programs. This shareware is in download library 5 of the Atari Developers' Forum on CompuServe.

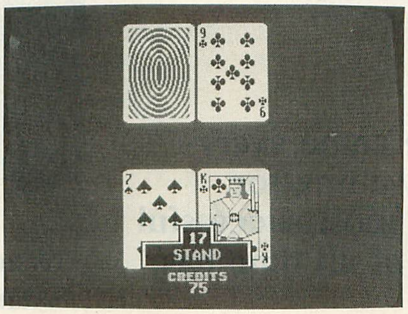
Darek Mihocka, CompuServe ID 73657,2714.

WHAT'S HE HITTING?

Baseball fans have no doubt noticed "IBM's Tale of the Tape" on the scoreboard. The Tale of the Tape measures how far a home team player's home run *would* go if there were no obstacles. Well, IBM and Major League Baseball have teamed up once again. **The MLB-IBM Baseball Information System** provides daily statistics for each player and team, including box scores, cumulative batting and pitching records, a play-by-play account of each ballgame and more than 300 reports.

Sportswriters and statisticians all over the country use this system. Stats are compiled and sent to a host computer by a home team representative. This information is now available to ST owners, too—at least, those who own pc-ditto.

IBM Corporation, Old Orchard Road, Armonk, NY 10504. For information, contact Rita Black, (914) 765-6408.



DEAL 'EM

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$39.95, color or mono. Omega Soft, P.O. Box 139, Harrells, NC 28444. (919) 532-2359.

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In the Strip Poker tradition is **Centerfold Squares** (price not set) Artworx imitates life, as once again you try with might and main to plan your strategy and make your opponent bare her all. The twist here is that you battle for strategically placed squares. The more you win, the more she reveals. You'll have more than 10 opponents, each with a different skill level. Spectacular digitized graphics round out this provocative game.

Color. Artworx Software Company, Inc., 1844 Penfield Road, Penfield, NY 14526. (716) 385-6120, (800) 828-6573.

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$24.95, color. Rainbird Software, 3885 Bohannon Drive, Menlo Park, CA 94025. (415) 322-0412.

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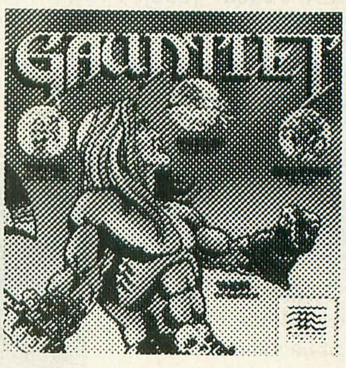
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Murder on the Atlantic

Rick Teverbaugh reviews ST, PC, Amiga contest game

Right out of the box, murder mysteries have an advantage over other computer games. The ground rules are so simple and consistent: Somebody has been killed, the killer is loose and, for whatever reason, only you can solve the mystery.

None of that has changed in Intracorp's **Murder On The Atlantic**. As the title might suggest, the murder has taken place on a huge ocean liner. The bigger the ship, the more suspects there are, and the more investigating you must do in order to unearth clues.

What's unusual about this game, though not unique, is the Intracorp contest for people who solve the mystery. Don't expect a real trip on an ocean liner if you win (that would be my first choice). Instead, you could receive one of 2,500 gift certificates for Intracorp products. Some of the prizes are reported to be worth nearly $200.

Another slightly unusual aspect of Murder on the Atlantic is that some clues are physical and come packaged with the game. These include buttons, paper clips, wire and string, as well as cryptic encoded messages, notes from one passenger to another, phone numbers, lock combinations, telegrams, radio logs, passenger lists and purser's logs.

It will take much longer to read all this information than to cover the six-page rulebook. Only six pages are needed because no matter what version you're playing—ST, Commodore 64, Amiga, Apple or IBM—the game plays the same and looks pretty much the same too. The ST and Amiga versions offer no major improvements over the others, despite the better graphics and sound available on these computers.



Only you can solve the mystery.

The murder cruise on the S.S. Bourgogne takes place in 1938. There are 600 cabins and 40 suspects. (Talk about underbooking!) The entire game is operated from the keyboard. To move from place to place, use the arrow keys. To look around an area, press [E] for "examine." If you can find the message decoder on board, you can make some sense out of the messages you receive. Pressing [T] invokes the decoder.

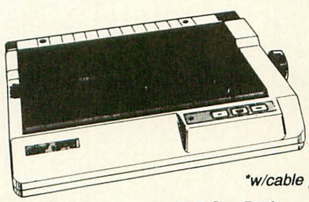
To interrogate someone, press [I]. But that person will just deliver a speech and you'll have no chance to ask questions. That's one real weakness of the game—you feel more like the reader of a mystery novel than an actual participant.

The ship has 14 decks, so you'll need to find the elevators near each end of the ship to move between decks. If you get stuck on the elevator, press [P] to call for a technician to fix it. Other than creating a nuisance, I can't find a good reason for this feature.

Sadly, this game's dryness of plot perfectly matches the style of graphics. The storyline is quite good and the puzzles are difficult, though not impossible. However, Murder on the Atlantic is likely to take real murder mystery fans to stick with it all the way. Just don't wait too long to decide whether or not this game is for you—the contest deadline is December 29, 1988. You won't solve this mystery in a week, although it's easy to save games in progress. Then each time you boot, you can proceed from where you left off.

$39.95, color. Intracorp Inc., 14160 S.W. 139 Court, Miami, FL 33186. (305) 252-9040.

star micronics NX1000



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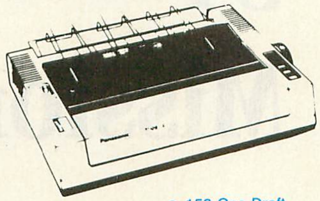
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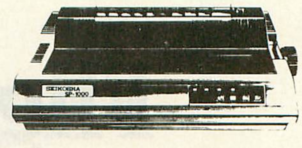
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ST Flight Missions

Wolf Griffey reviews Carrier Command

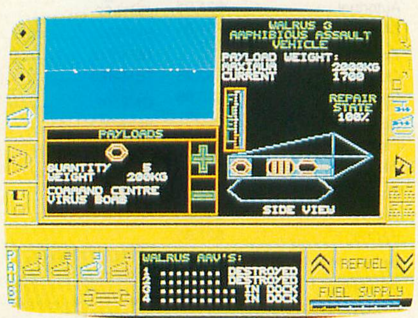
CARRIER COMMAND

Mission Briefing: Take command of the Aircraft Carrier Epsilon. The computer-controlled enemy Aircraft Carrier Omega is in the area of the mineral-rich volcanic island chain and has begun building unfriendly bases. The Omega's robots can command all stations and will not tire. Seek out and neutralize the Omega with the inherent superiority of the human mind. . .

Carrier Command is a multi-screen, multi-level battle strategy game that tests your abilites to lead your high-powered command against an implacable computerized opponent. The cyber-operated Epsilon and Omega have been developed to exploit an area of new volcanic islands containing stupendous mineral resources. Now the Omega does not respond to government orders and is heading for the 64-island chain to set up operations for the criminal organization STANZA. Your objective is to stop the Omega and establish friendly bases in the island chain.

The Epsilon and Omega each have the same inventory of mighty weapons, including chemical lasers, surface and air missiles, defense drones, flares, WALRUS amphibious tanks, MANTA aircraft and much more. Throw in damage control, navigation and carrier stores, and you're one busy commander.

Your targets are the unfortunate islands where the Omega has placed ACCBs (Automated Command Centre Builders). To convert an island to "friendly," either take out the ACCB with firepower, or use a slower-acting Virus Bomb. Your islands are your supply line and you need them—there's no corner garage.



But enough background, the game itself is *great.* It has been played to death by the **Antic** and START editors. Carrier Command graphics are superb—wait till you see the view from inside a WALRUS heading for the beach. There's always something happening. You must employ good tactics just to stay even.

My one personal ding against Carrier Command is that although I can get four WALRUS tanks and four MANTA jets into the fight at once, I can view from only one unit at a time. If more windows had been added to the active command screen, you could make a truly coordinated attack.

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Former Marine Corps jet pilot Wolf Griffey can now be found in the Antic Software Customer Service Department.

Antic and START editors have played this game to death. Graphics are superb: wait till you see the view from inside a WALRUS heading for the beach.

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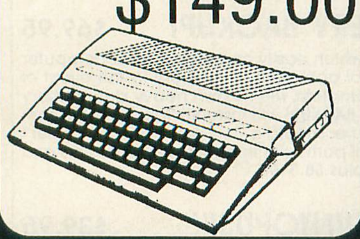
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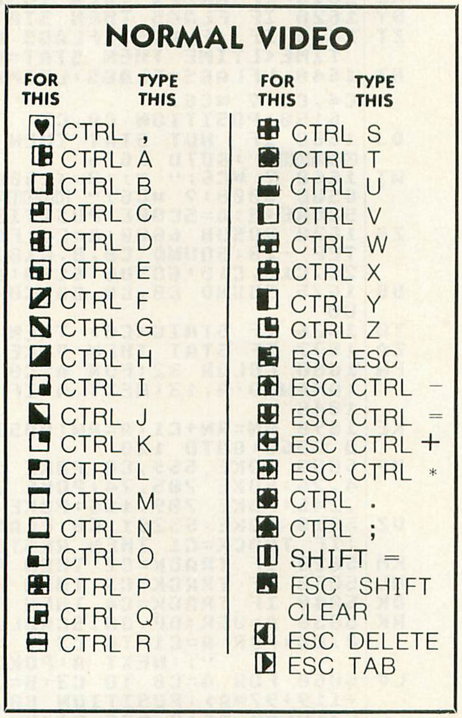
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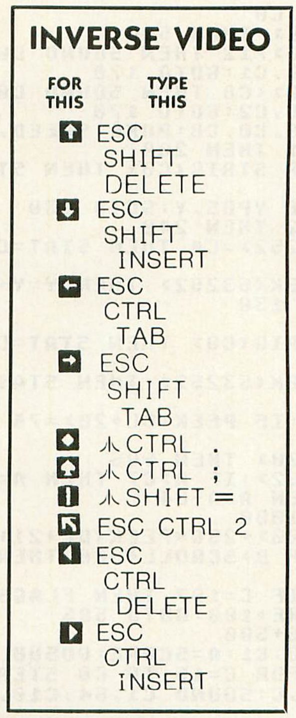
TYPING SPECIAL ATARI CHARACTERS

The Atari Special Characters and the keys you must type in order to get them are shown below:

For [CONTROL] key combinations, *hold down* [CONTROL] while pressing the next key. For inverse [CONTROL] [A] through [CONTROL] [Z], press the [◪] key—or [人] on the 400/800—then *release* it before pressing the next key. (Press [◪] or [人] again to turn off inverse.) For [ESC] key combinations, press [ESC] and then *release* it before pressing the next key.

Carefully study the chart above and pay close attention to differences between lookalike characters such as the slash key's [/] and the [CONTROL] [F] symbol [◪].





TYPO II AUTOMATIC PROOFREADER

TYPO II automatically proofreads **Antic**'s type-in BASIC listings. Type in the listing below and SAVE a copy to disk or cassette. Now type GOTO 32000. At the prompt, type in a single program line **without the two-letter TYPO II code at the beginning**. Then press [RETURN].

Your line will reappear at the bottom of the screen. If the TYPO II code does not match the code in the magazine, then you've mistyped your line.

To call back a previously typed line, type [*], then the line number, then [RETURN]. When the completed line appears, press [RETURN] again. This is how TYPO II proofreads itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000. To remove TYPO II from your program, type LIST "D:FILENAME",0,31999, then [RETURN], then NEW, then ENTER "D:FILENAME", then [RETURN]. Now you can SAVE or LIST your program to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

E-RACER

Article on page 14

LISTING 1

Don't type the TYPO II Codes!

```
GZ 10 REM E-RACER
WQ 20 REM BY JAMES HAGUE
QH 30 REM (c)1988, ANTIC PUBLISHING
SW 100 GOSUB 7000
TJ 110 GOSUB 8000
SE 120 GOSUB 5000
LP 125 POKE 53278,C0
MI 130 IF PEEK(CTL) THEN 500
BU 140 IF STICK(C0)>12 THEN SOUND C0,40,C0,C8:POKE SPEED,C1:GOTO 170
QX 150 IF STICK(C0)<C8 THEN SOUND C0,11,C0,C8:POKE SPEED,C2:GOTO 170
UQ 160 SOUND C0,90,C0,C8:POKE SPEED,255
HK 170 IF STAT<>C1 THEN 200
ER 180 IF Y<=56 OR STRIG(C0) THEN STAT=C2:GOTO 125
QR 190 Y=Y-C1:POKE YPOS,Y:GOTO 130
LA 200 IF STAT<>C2 THEN 240
DS 210 IF PEEK(53252)=C4 THEN STAT=C0:GOTO 130
BE 220 IF  NOT PEEK(53252) THEN Y=Y+C1:POKE YPOS,Y:GOTO 130
MU 230 GOTO 130
DA 240 IF  NOT STRIG(C0) THEN STAT=C1:GOTO 130
FH 250 IF  NOT PEEK(53252) THEN STAT=C2
OX 260 GOTO 125
AJ 500 A=PEEK(20):IF PEEK(DL+20)=76 THEN 1500
PU 505 IF A=PEEK(20) THEN 505
JL 510 A=PEEK(53252):IF A>C7 THEN A=A-C8
CW 520 IF A>C3 THEN A=A-C4
VP 530 IF A THEN 1000
AJ 540 A=PEEK(DL+20)+256*PEEK(DL+21)+C4:B=USR(SCAN,A):IF B>SCROLL+388 THEN GOTO 130
JS 570 C=PEEK(B):IF C=197 THEN FLAGS=FLAGS+C1:SCORE=SCORE+100:GOTO 585
TA 580 SCORE=SCORE+500
WR 585 POSITION C0,C1:A=SCORE:GOSUB 6000
FA 590 POKE B,C0:FOR C=15 TO C0 STEP -C1:SOUND C0,24,C2,C:SOUND C1,54,C10,C:NEXT C
GH 600 POKE 53278,C0:POSITION C0,C1:A=SCORE:GOSUB 6000:POKE CTL,C0:GOTO 130
NM 1000 POKE DRAW,255:CARS=CARS-C1:POKE GAME+28,CARS+16:POKE 704,31
XY 1010 FOR A=14 TO C4 STEP -C2:C=C10:FOR B=A TO C0 STEP -C1:SOUND C0,C,C8,B:C=C+C10:POKE 712,B:NEXT B:NEXT A
LM 1020 A=C2:FOR B=C8 TO C1 STEP -C1:SOUND C0,40,C8,B:POKE 704,15+B*C2:GOSUB 6150:NEXT B:SOUND C0,C0,C0,C0
LW 1030 POKE 704,C0:A=60:GOSUB 6150:IF CARS THEN GOTO 120
EV 1040 POSITION C5,C8:? #C6;"game  over":IF SCORE<=HSCORE(TRACK-C1) THEN 1050
ES 1045 HSCORE(TRACK-C1)=SCORE:HRN(TRACK-C1)=RN:CHANGED=TRACK
VJ 1050 FOR A=15 TO C4 STEP -C1:FOR B=A TO C0 STEP -C1:SOUND C0,31,C10,B:SOUND C1,60,C10,B:NEXT B:NEXT A
PZ 1060 POSITION C5,C8:? #C6;"          ":POKE 53248,C0:POKE 53249,C0:GOTO 110
QH 1500 TIME=PEEK(20)+256*PEEK(19):POSITION C4,C3:? #C6;"run complete"
NP 1510 FOR A=C1 TO C3:FOR B=15 TO C0 STEP -C1:SOUND C0,40,C10,B:SOUND C1,60,C10,B:NEXT B:NEXT A:POKE DRAW,C0:A=30
LO 1520 GOSUB 6150:POSITION C0,C6:IF RN=C1 THEN 1555
DD 1540 ? #C6;"        last run":A=60:GOSUB 6150:? #C6:A=LFLAGS:GOSUB 6200:A=LTIME:GOSUB 6100:? #C6;" SEC  ";
TB 1550 FOR A=C1 TO LFLAGS:? #C6;CHR$(133);:NEXT A:? #C6:? #C6:? #C6:A=90:GOSUB 6150
QY 1555 ? #C6;"        this run":A=60:GOSUB 6150
MI 1560 ? #C6:A=FLAGS:GOSUB 6200:A=TIME:GOSUB 6100:? #C6;" SEC  ";:A=60:GOSUB 6150
KR 1570 IF  NOT FLAGS THEN ? #C6;"none":GOTO 1600
SA 1580 FOR A=C1 TO FLAGS:? #C6;CHR$(133);:FOR B=15 TO C0 STEP -C1:SOUND C0,108,C10,B:SOUND C0,172,C10,B:NEXT B
CQ 1590 NEXT A
HU 1600 A=120:GOSUB 6150:STAT=C0
MG 1610 IF RN>C1 THEN 1630
BY 1620 IF FLAGS THEN STAT=C1:GOTO 1640
ZT 1630 IF (FLAGS>LFLAGS OR FLAGS=C5) AND TIME<LTIME THEN STAT=C1
HZ 1640 LFLAGS=FLAGS:LTIME=TIME:POSITION C4,C3:? #C6;"            ":A=C10:GOSUB 6150:POSITION C0,C3
DJ 1650 IF  NOT STAT THEN ? #C6;"       too  bad":GOTO 1676
WT 1660 ? #C6;" ";:B=(1500-TIME)*RN:A=B:GOSUB 6000:? #C6;" bonus points":SCORE=SCORE+B:A=SCORE:POSITION C0,C1
ZS 1670 GOSUB 6000:A=C4:FOR B=200 TO 20 STEP -20:SOUND C0,B,C10,C10:SOUND C1,B+25,C10,C10:GOSUB 6150:NEXT B
BB 1675 SOUND C0,C0,C0,C0:SOUND C1,C0,C0,C0
TB 1676 IF STRIG(C0) THEN 1676
ZA 1677 IF STAT THEN POKE 559,C0
FN 1680 COLOR 32:FOR A=C0 TO 19:PLOT A,C3:DRAWTO A,13:NEXT A:IF  NOT STAT THEN 1040
KE 1690 RN=RN+C1:A=RN:POSITION 12,C1:GOSUB 6050:GOTO 120
HP 5000 POKE 559,C0:POKE 53277,C2:POKE 704,26:POKE 705,74:POKE 708,246:POKE 710,246:POKE 709,116:POKE 711,102
VZ 5010 POKE 53261,C0:FLAGS=C0:POKE 77,C0:IF TRACK=C1 THEN RESTORE 9000
KM 5020 IF TRACK=C2 THEN RESTORE 9100
ML 5030 IF TRACK=C3 THEN RESTORE 9200
OK 5040 IF TRACK=C4 THEN RESTORE 9300
RK 5050 A=USR(DP,88,SCROLL+22):POSITION C0,C0:FOR A=C1 TO C3:? #C6;"                    ";:NEXT A:POKE SPEED,C2
LV 5060 FOR A=C0 TO C3:B=USR(DP,88,SCROLL+119+97*A):POSITION C0,C0:FOR B=C1 TO C3:READ A$:? #C6;A$(C2,21);:NEXT B
QJ 5070 NEXT A:A=USR(DP,88,GAME):A=USR(DP,560,DL):A=SCROLL:FOR B=DL+20 TO DL+32 STEP C3:C=USR(DP,B,A):A=A+97:NEXT B
IR 5080 IF RN>C1 OR CARS<C2 THEN 5100
XX 5090 POSITION C0,C1:? #C6;"00000  02001":FOR A=C0 TO C5:READ X,Y,B:FLAG(A)=SCROLL+97*Y+INT(RND(C0)*B+X):NEXT A
UL 5100 B=INT(RND(C0)*C6):FOR A=C0 TO C5:IF A=B THEN POKE FLAG(A),198
CB 5110 IF A<>B THEN POKE FLAG(A),197
LJ 5120 NEXT A:Y=97:POKE YPOS,Y:POKE 53248,56:POKE DRAW,255:POKE 559,42
FA 5130 POSITION C1,C7:? #C6;"start your engines":A=20:GOSUB 6150:A=5
RC 5140 FOR B=100 TO C0 STEP -C5:SOUND 0,B,C8,(100-B)/12:GOSUB 6150:NEXT B:POSITION C1,C7:? #C6;"                  "
VL 5150 POSITION C4,C8:? #C6;"get  moving ":POKE 53249,48:POKE DRAW,C1
NP 5160 FOR B=40 TO 200 STEP C3:SOUND C0,B,C2,14:POKE 712,14*(B=40):NEXT B:SOUND C0,40,C0,C8:POKE 19,C0:POKE 20,C0
GU 5170 FOR B=56 TO 80:POKE 53248,B:POKE 53249,B-C8:NEXT B:POKE 205,C1
LE 5180 POSITION C4,C8:? #C6;"            ":STAT=C0:POKE 208,C0:POKE 53278,C0:POKE SPEED,C1:POKE CTL,C0:RETURN
RR 5999 REM PRINT SCORE (A)
ZI 6000 A$=STR$(A)
SB 6010 IF LEN(A$)=C5 THEN 6030
OS 6020 FOR A=C1 TO C5-LEN(A$):? #C6;"0";:NEXT A
LF 6030 ? #C6;A$;:RETURN
WB 6050 IF A<C10 THEN ? #C6;"0";
HC 6060 ? #C6;STR$(A);:RETURN
IU 6100 B=INT(A/60):C=INT((A-B*60)/0.6):IF B<C10 THEN ? #C6;"0";
AR 6110 ? #C6;B;".";:IF C<C10 THEN ? #C6;"0";
XD 6120 ? #C6;C;:RETURN
TP 6150 POKE 20,C0
```

```
BB 6160 IF PEEK(20)<A THEN 6160
BB 6170 RETURN
QG 6200 IF  NOT A THEN B=C2:GOTO 6220
FL 6210 B=INT((20-(A+11))/C2)
NO 6220 FOR C=C1 TO B:? #C6;" ";:NEXT C:R
ETURN
TA 7000 RESTORE :READ C0,C1,C2,C3,C4,C5,C
6,C7,C8,C9,C10:GRAPHICS 18:POKE 16,112
:POKE 53774,112:POKE 708,C0
DU 7010 POKE 712,136:POSITION C0,C5:? #C6
;" PREPARE YOURSELF":TRACK=C1
WK 7020 DIM MOV$(46),DP$(17),MEM$(3892),A
$(22),FLAG(C5),HSCORE(C3),HRN(C3)
AR 7030 TRAP 7050:DISK=C1:CHANGED=C0
ZP 7040 OPEN #C1,C4,C0,"D:ERACER.HSC":FOR
 A=C0 TO C3:INPUT #C1;B:HSCORE(A)=B:GE
T #C1,B:HRN(A)=B:NEXT A:GOTO 7065
SO 7050 FOR A=C0 TO C3:HSCORE(A)=C0:HRN(A
)=C0:NEXT A
VZ 7060 IF PEEK(195)<>170 THEN DISK=C0
XL 7065 CLOSE #C1
FH 7070 MOV$="hh▘h▘h▘Uh▘Th▘Oh▘n■▘PrTfT
PPfUfPP▘fAPJFO▘f▘"
IA 7080 DP$="hh▘Uh▘T■Ch▘T▘h▘T▘"
SI 7090 MOV=ADR(MOV$):DP=ADR(DP$)
TR 7100 MEM$="▘":MEM$(3892)="▘":MEM$(C2)=
MEM$:A=ADR(MEM$):B=1024:CH=B-(A-INT(A/
B)*B)+A:PM=CH+B:SCROLL=PM
AW 7110 PL0=SCROLL+512:PL1=PL0+128:TDL=PL
1+128:DL=TDL+35:TITLE=SCROLL+B:GAME=TI
TLE+540
HG 7120 A=USR(MOV,57344,CH,768):FOR A=C1
TO 16:READ B:B=CH+B*C8:FOR C=B TO B+C7
:READ D:POKE C,D:NEXT C:NEXT A
PY 7130 POKE 756,CH/256:POKE 54279,PM/256
:POKE 53256,C0:POKE 53257,C0:POKE 623,
C1:POKE 53277,C0:TRAP 40000
MJ 7140 A=USR(MOV,ADR("pppF..▘▘▘▘▘▘▘▘▘▘▘
▘W..W..W..W..W..A"),DL,35)
VL 7150 A=USR(DP,DL+C4,GAME):A=USR(DP,DL+
35,DL):POSITION C0,C0
HL 7160 A=USR(DP,88,GAME):? #C6;"score ca
rs run track00000  00  000   1"
TC 7165 A$="ZZZZZZZZZZZZZZZZZZZZZZ":A=USR
(DP,88,SCROLL+388):POSITION C0,C0:? #C
6;A$:POSITION C2,C4:? #C6;A$(C8)
LB 7170 A=USR(MOV,ADR("pppF..▘ppF..P▘▘▘▘▘
pp▘p▘▘▘▘▘p▘p▘A"),TDL,33)
BM 7180 A=USR(DP,TDL+C4,GAME):A=USR(DP,TD
L+C10,TITLE):A=USR(DP,TDL+33,TDL)
GU 7190 A=USR(DP,88,TITLE):POKE 87,C1:POS
ITION C3,C0:? #C6;"james  hague▘S"
GB 7200 ? #C6;"
---- ----":? #C6;"  -   -   -
 -  -   -  - -"
JB 7210 ? #C6;"     ----  -   -
---- -":? #C6;"   -    -   -   -
  -  -   -"
MT 7220 ? #C6;"   ----   -   ---- ----
---- -":POSITION 15,11:? #C6;"TOP SCO
RES"
SO 7230 POSITION 11,13:? #C6;"Track  Scor
e  Run":A=USR(DP,88,TITLE+300)
UO 7240 FOR B=C0 TO C3:POSITION 13,B+B:?
#C6;B+C1;"    ";:A=HSCORE(B):GOSUB 600
0:? #C6;"  0";:A=HRN(B):GOSUB 6050
CK 7250 NEXT B:POSITION C5,C10:? #C6;"■SE
LECT■ track or ■START■ race"
BY 7260 A=USR(MOV,ADR("h▘ ▘▘DNL\▘▘▘▘▘▘▘
▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘KPC▘▘▘▘▘▘▘;▘▘▘M
▘▘▘P8▘Q▘▘▘▘i▘▘▘P▘▘TP"),1538,78)
ZA 7270 A=USR(MOV,ADR(" H▘▘IN▘iH▘NHIN▘i▘▘N
HHJPN▘HINIL▘▘K▘?▘▘▘▘▘▘▘▘J▘W▘▘▘▘▘*▘▘▘
▘▘▘▘▘▘▘▘▘▘&Lh▘R=▘"),1616,76)
UR 7280 A=USR(MOV,ADR("▘▘▘▘▘▘▘▘H&▘▘▘▘▘L b
dXhh▘Uh▘T▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘▘ ▘▘▘▘^
▘&▘J▘▘▘eT▘T▘▘Ui▘▘▘U▘"),1692,76)
TA 7290 A=USR(DP,1654,PL0+56):A=USR(DP,16
57,PL1+56):A=USR(DP,1675,PL0):A=USR(DP
,1698,PL1):A=USR(DP,206,DL+19)
XT 7300 SCAN=1711:CTL=203:SPEED=204:DRAW=
1536:YPOS=1537:POKE CTL,C1:POKE DRAW,C
0:A=USR(1538):RETURN
OF 7500 DATA 0,1,2,3,4,5,6,7,8,9,10
AF 7510 DATA 3,0,4,12,28,30,124,254,255
GY 7520 DATA 4,0,0,8,24,28,30,62,127
GD 7530 DATA 5,128,254,252,248,240,128,12
8,128
GS 7540 DATA 6,1,127,63,31,15,1,1,1
BG 7550 DATA 8,0,193,241,251,255,255,255,
255
BH 7560 DATA 9,0,129,195,227,233,251,255,
255
BB 7570 DATA 10,0,0,0,0,0,8,44,127
KZ 7580 DATA 11,0,0,0,0,0,32,105,251
OO 7590 DATA 27,255,95,29,8,0,0,0,0
TQ 7600 DATA 13,85,85,85,85,85,85,85,85
LH 7610 DATA 15,0,3,7,7,31,63,63,127
OA 7620 DATA 28,0,0,128,200,248,252,254,2
54
SH 7630 DATA 29,1,1,3,3,23,31,127,255
MW 7640 DATA 30,192,224,248,252,252,254,2
54,255
LQ 7650 DATA 56,0,255,255,255,255,255,255
,255
CQ 7660 DATA 58,255,255,255,255,255,255,2
55,255
FQ 8000 POKE 559,C0:A=USR(DP,560,TDL):POK
E 708,26:POKE 709,C10:POKE 710,C0:POKE
 711,102:POKE 712,C0
ZK 8010 A=USR(DP,88,TITLE+300):IF DISK AN
D CHANGED THEN POSITION C8,C8:? #C6;"P
ress 'S' to save scores"
GL 8020 IF CHANGED THEN B=CHANGED-C1:POSI
TION 18,B+B:A=HSCORE(B):GOSUB 6000:? #
C6;"  0";:A=HRN(B):GOSUB 6050
EO 8040 POKE 764,255:POKE 559,34
BY 8050 POKE 77,C0:FOR A=C1 TO C10:NEXT A
XV 8060 IF PEEK(53279)=C6 OR  NOT STRIG(C
0) THEN SCORE=C0:RN=C1:CARS=C2:RETURN
SI 8070 IF DISK AND CHANGED AND PEEK(764)
=62 THEN GOSUB 8500:GOTO 8050
EG 8080 IF PEEK(53279)<>C5 THEN 8060
ES 8090 TRACK=TRACK+C1:IF TRACK>C4 THEN T
RACK=C1
RD 8100 POKE GAME+37,TRACK+16
AT 8110 IF PEEK(53279)=C5 THEN 8110
SP 8120 GOTO 8050
BT 8500 TRAP 8530:OPEN #C1,C8,C0,"D:ERACE
R.HSC":A=C0
DG 8510 ? #C1;HSCORE(A):PUT #C1,HRN(A):A=
A+C1:IF A<C4 THEN 8510
JZ 8520 CLOSE #C1:TRAP 40000:POSITION C8,
C8:? #C6;"                    ":CH
ANGED=C0:RETURN
DD 8530 CLOSE #C1:TRAP 40000:A=C1:FOR B=1
5 TO C0 STEP -C1:SOUND C0,90,C10,B:GOS
UB 6150:NEXT B:POKE 764,255:RETURN
GT 9000 DATA "                  $  "
CL 9001 DATA "                     "
IC 9002 DATA " +                   "
DH 9003 DATA "               =Z>   "
OX 9004 DATA "            /ZZZZZZZ"
EB 9005 DATA "ZZ>                 "
MW 9006 DATA "   /ZZZZZZZZZZZZZZZ<"
DZ 9007 DATA "        /ZZZZZZZZZZZ"
JA 9008 DATA "ZZZZZZ<*=(ZZZ       "
DJ 9009 DATA "ZZZZZZZZZZZZZZZZZZZZ"
MA 9010 DATA "ZZZZZZZZZ(ZZZZZZZZZZZ"
JQ 9011 DATA "ZZZZZZZZZZZZZZZZZZZZ"
JI 9012 DATA 27,2,4,33,2,4,43,3,5,56,1,6,
66,2,3,77,3,4
CJ 9100 DATA "                    "
RD 9101 DATA "          $+ #      "
GH 9102 DATA "           =>       "
CU 9103 DATA "  /ZZZ<     /ZZZZ<  "
VU 9104 DATA "       =ZZ>ZZZZZZ   "
AF 9105 DATA " /ZZ<       /ZZZZZZ< "
ZY 9106 DATA " /ZZZZZzzzzZZZZZZ()  "
KR 9107 DATA "      /ZZZZZZZZZZxxx"
PR 9108 DATA "xZZZZ  $   *=ZZZZZZZ>"
FH 9109 DATA "ZZZZZZzzzzZZZZZZZZZZ"
DK 9110 DATA "ZZZZZZZZZZZZZZZZZzzz"
LR 9111 DATA "zZZZZ(Z>(ZZZZZZZZZZZ"
PW 9112 DATA 25,1,3,34,1,4,43,3,4,55,1,4,
64,1,2,77,1,3
JZ 9200 DATA "  +=>ZZZZZ      /ZZZZ"
EB 9201 DATA "ZZ                $  "
HB 9202 DATA "   /ZZZZxxxx>        "
WE 9203 DATA " /ZZZZZZZZ        ZZZZZ"
PW 9204 DATA "ZZ                =ZZ"
KP 9205 DATA "ZZZZZZZzzzzZ         "
NJ 9206 DATA "=ZZZZZZZZZ    **/ZZZZZ"
RN 9207 DATA "ZZ *+         /ZZZZZZ"
AH 9208 DATA "ZZZZZZZzzzzZZZZZZ<   "
AM 9209 DATA "ZZZZZZZZZZ()ZZZZZZZZ"
PB 9210 DATA "Z>)ZZ>ZZZZZZZZZZZZZZ"
RE 9211 DATA "ZZZZZZZZzzzzZZZZZZ(Z"
ET 9212 DATA 27,0,5,38,0,6,49,3,4,55,2,3,
65,0,4,76,2,3
NO 9300 DATA "              /ZZZZZ<+"
NU 9301 DATA "                  /ZZ"
MJ 9302 DATA "ZZZ<         /ZZZZ()  "
AH 9303 DATA "       /ZZZZ(ZZZZZZZZ"
```

continued on next page

```
PZ 9304 DATA "xxxxxxxxxxZZZ<     ;;;"
MQ 9305 DATA ";;;;         =ZZZZZZZ> "
WR 9306 DATA "/ZZZZZZZZZZZZZZZZZZZZ"
DR 9307 DATA "zzzzzzzzzZZZZ>       "
DN 9308 DATA "         /ZZZZZZZZZ< "
IF 9309 DATA "ZZZZZZZZZZZZZZZZZZZZZ"
JY 9310 DATA "zzzzzzzzzZZZZZ)ZZZZZ"
AN 9311 DATA "ZZZZZZZZZZZZZZZZZZZZ)"
YC 9312 DATA 23,2,4,29,1,4,35,0,5,51,1,3,
   59,3,8,73,0,4
```

LISTING 2

```
WY 10 REM E-RACER, LISTING 2
WQ 20 REM BY JAMES HAGUE
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
PG 35 REM CREATES LINES 7070-7080, 7140,
   7170 AND 7260-7280 FOR ERACER.BAS
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "}Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:?  "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")       "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "COMPLETED
   "
IL 1000 DATA 543
WI 1010 DATA 0550480550480320770790860360
   6103410410413324110413324010413321310
   413321210413323910413323816O
RT 1020 DATA 0001772401452122302122080022
   3021323024020800223024119823820823419
   8239016230096034155055048056
YE 1030 DATA 0480320680800036061034104104
   1332131041332121600011041452121361041
   45212096034155055049052048032
FR 1040 DATA 0650610850830820400770790860
   4406506808204003411211211207004604600
   6006006006006006006006006
HI 1050 DATA 0060060060870460460870460460
   8704604608704604608704604606503404104
   4068076044051053041155055049
IO 1060 DATA 0550480320650610850830820400
   7707908604406506808204003411211211207
   0046046006112112070046046080
WG 1070 DATA 0040040040040041121120021120
   0201600200200200211200211200206503404
   1044084068076044051051041155
SZ 1080 DATA 0550500540480320650610850830
   8204007707908604406506808204003410416
   0032162006169007076092228240
JC 1090 DATA 2522302272252552552540030000
   0500700100300601503106212725521617300
   4208041011240002133203165203
HO 1100 DATA 2080671652040160081982050160
   5916900113320513320916520805622920904
   8002208005024105008160000133
OR 1110 DATA 2081410042122080340410440490
   5305105604405505604115505505005504803
   2065061085083082040077079086
EG 1120 DATA 0440650680820400340322001620
   0517720602410500114520620017720610500
   0145206200200202208237160001
YF 1130 DATA 1772062010762080021322031620
   6316900015725525515725525520201624717
   2000006240041170172001006189
TK 1140 DATA 0120061532552551342091730000
   0604801616620423217301021006102003404
   1044049054049054044055054041
FG 1150 DATA 1550550500560480320650610850
   8308204007707908604406506808204003400
   6170189024006153255255200166
ER 1160 DATA 2092322240082082190760982282
   1610410413321310413321216000016200313
   4214162002177212201197240022
RM 1170 DATA 2011982400181690010322200062
   0201623816909403222000616621420201622
   4096024101212133212165213105
FP 1180 DATA 0001332130960340410440490540
   57050044055054041155
```

VERSION DETECTIVE

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LISTING 1

Don't type the TYPO II Codes!

```
WR 10 REM VERSION DETECTIVE
PK 20 REM BY SUMMERS/JACKSON
QH 30 REM (c)1988, ANTIC PUBLISHING
OT 40 GRAPHICS 0:POKE 712,PEEK(710)
UJ 50 DIM BUFF1$(256),BUFF2$(256),FIL1$(1
   8),FIL2$(18),HOLD$(18),TEMP$(18)
AU 60 BUFF1$(1)="♥":BUFF1$(256)="♥":BUFF1
   $(2)=BUFF1$:BUFAD1=ADR(BUFF1$)
GN 70 BUFF2$=BUFF1$:BUFAD2=ADR(BUFF2$)
PK 80 BUF1HI=INT(BUFAD1/256):BUF1LO=((BUF
   AD1/256)-BUF1HI)*256
VE 90 BUF2HI=INT(BUFAD2/256):BUF2LO=((BUF
   AD2/256)-BUF2HI)*256
OM 100 GOSUB 7000:? :? "First file";:INPU
   T FIL1$:IF LEN(FIL1$)<1 THEN 100
MC 110 TEMP$=FIL1$:GOSUB 8000:FIL1$=TEMP$
   :IF FIL1$(LEN(FIL1$))=":" THEN 100
KZ 120 TRAP 100:CLOSE #1:OPEN #1,4,0,FIL1
   $:CLOSE #1
FB 130 POKE 710,152:POKE 712,152:POKE 709
   ,0
QS 140 GOSUB 7000:? :? "Second file";:INP
   UT FIL2$:IF LEN(FIL2$)<1 THEN 140
CZ 150 TEMP$=FIL2$:GOSUB 8000:FIL2$=TEMP$
   :IF FIL2$(LEN(FIL2$))=":" THEN 140
HV 160 TRAP 140:CLOSE #2:OPEN #2,4,0,FIL2
   $
5D 170 TRAP 40000:CLOSE #1:OPEN #1,4,0,FI
   L1$
UC 180 IO1=848:IO2=864:BTOT1=0:BTOT2=0:FL
   AG=0:? :? "Working..."
NK 190 POKE IO1+2,7:POKE IO2+2,7
AZ 200 POKE IO1+4,BUF1LO:POKE IO2+4,BUF2L
   O
GB 210 POKE IO1+5,BUF1HI:POKE IO2+5,BUF2H
   I
FM 220 POKE IO1+8,0:POKE IO2+8,0:POKE IO1
   +9,1:POKE IO2+9,1
XO 230 FOR X=1 TO 2:JNK=USR(ADR("hhh■LV■"
   ),16*X):NEXT X
DT 240 BYTRED1=PEEK(IO1+8)+PEEK(IO1+9)*25
   6:BYTRED2=PEEK(IO2+8)+PEEK(IO2+9)*256
```

```
ER 241 IF (BYTRED1=BYTRED2) AND BYTRED1<>
   256 THEN FLAG=1
TW 245 BUFF1$=BUFF1$(1,BYTRED1):BUFF2$=BU
   FF2$(1,BYTRED1)
CH 250 BTOT1=BTOT1+BYTRED1:BTOT2=BTOT2+BY
   TRED2
GR 260 IF BTOT1>BTOT2 THEN ? :? "File #1,
    ";FIL1$;", is longer.":GOTO 380
IX 270 IF BTOT1<BTOT2 THEN ? :? "File #2,
    ";FIL2$;", is longer.":GOTO 380
UI 280 IF FLAG=1 AND BUFF1$=BUFF2$ THEN 3
   40
TH 290 IF BUFF1$=BUFF2$ THEN 190
WI 291 FOR X=1 TO 256:IF BUFF1$(X,X)=BUFF
   2$(X,X) THEN NEXT X
MR 292 POP :D=X
LZ 300 POKE 82,21:POKE 83,39:? "▛":POKE 7
   66,1:POSITION 21,0:? FIL2$;":":? "□□□□
   □□□□□□□□□□□□":? BUFF2$
BU 310 POKE 82,0:POKE 83,18:POKE 766,1:PO
   SITION 0,0:? FIL1$;":":? "□□□□□□□□□□□□□
   □□□":? BUFF1$:?
UP 320 POKE 82,2:POKE 83,39:?
WM 321 POKE 766,1:? BUFF1$(D,D),," ";BUFF
   2$(D,D):POKE 766,0:?
XC 322 ? "   Mismatch at byte  #";INT(BT
   OT1/256)*256+D
NF 323 ? "(Byte #";D;" in the window.)"
PS 330 GOTO 380
AT 340 ? "▛↓↓↓File #1 - ";FIL1$:? ,"(";BT
   OT1;" Bytes)"
RV 350 ? :? "File #2 - ";FIL2$:? ,"(";BTO
   T2;" Bytes)"
VD 360 ? :? :? "Files are identical."
QL 370 GOTO 390
JS 380 ? :? :? "Files are different."
OK 390 END
HJ 6999 REM DISK DIRECTORY
EN 7000 POKE 82,1:? "▛┌━━━━━━━━━━━━━━━━━━━━━━
   ━━━━━━━━━━━━━━━━━━━━━━┐"
CV 7010 ? "┃           Directory D1:
   ┃"
RP 7020 ? "┣━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━
   ━━━━━━━━━┫"
UN 7030 CLOSE #1:OPEN #1,6,0,"D1:*.*":FLA
   G=0
WG 7040 TRAP 7090:INPUT #1,HOLD$:IF LEN(H
   OLD$)<17 OR HOLD$(LEN(HOLD$))="S" THEN
    7070
OG 7050 ? "┃";HOLD$;"┃";:IF FLAG=1 THEN ?
FA 7060 FLAG= NOT (FLAG):GOTO 7040
TZ 7070 IF FLAG=1 THEN ? "┃
     ┃"
RJ 7080 ? "└━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━
   ━━━━━━━━━┘":POKE 82,2:? "         ";HO
   LD$
NN 7090 CLOSE #1:TRAP 40000:RETURN
MR 7999 REM CHECK FOR DX: ON FILENAMES
ZM 8000 LT=LEN(TEMP$):IF LT<3 THEN 8030
GX 8010 IF TEMP$(1,2)="D:" THEN 8040
BS 8020 IF LT>2 THEN D=ASC(TEMP$(2,2)):IF
    TEMP$(1,1)="D" AND TEMP$(3,3)=":" AND
    D>48 AND D<57 THEN 8040
PV 8030 HOLD$="D1:":HOLD$(4)=TEMP$:TEMP$=
   HOLD$
AS 8040 RETURN
```

SEMAPHORE

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LISTING 1

Don't type the TYPO II Codes!

```
UK 1 REM SEMAPHORE
SY 2 REM BY HOWIE WISHART
QR 3 REM (c)1988, ANTIC PUBLISHING
ZG 4 REM DO NOT RENUMBER THIS PROGRAM!
JW 5 GOTO 6000
AZ 32 PM$(296,309)=S$:RETURN
OK 50 PM$(168,183)=A$:RETURN
NW 51 PM$(166,173)=B$:RETURN
MN 52 PM$(150,165)=C$:RETURN
LV 53 PM$(270,293)=DL$:RETURN
QB 54 PM$(270,293)=DR$:RETURN
MU 55 PM$(406,421)=E$:RETURN
QZ 56 PM$(422,429)=F$:RETURN
SZ 57 PM$(424,439)=G$:RETURN
XQ 60 PM$(296,309)=SL$:RETURN
BW 61 PM$(296,309)=SR$:RETURN
II 65 GOSUB 50:GOSUB 60:RETURN
IV 66 GOSUB 51:GOSUB 60:RETURN
JI 67 GOSUB 52:GOSUB 60:RETURN
KP 68 GOSUB 53:GOSUB 61:RETURN
LN 69 GOSUB 55:GOSUB 61:RETURN
LH 70 GOSUB 56:GOSUB 61:RETURN
LU 71 GOSUB 57:GOSUB 61:RETURN
SL 72 PM$(166,183)=H$:RETURN
JA 73 GOSUB 50:GOSUB 52:RETURN
NW 74 GOSUB 54:GOSUB 56:RETURN
IX 75 GOSUB 53:GOSUB 50:RETURN
LO 76 GOSUB 50:GOSUB 55:RETURN
MK 77 GOSUB 50:GOSUB 56:RETURN
NG 78 GOSUB 50:GOSUB 57:RETURN
JX 79 GOSUB 51:GOSUB 52:RETURN
KA 80 GOSUB 51:GOSUB 53:RETURN
LQ 81 GOSUB 51:GOSUB 55:RETURN
MM 82 GOSUB 51:GOSUB 56:RETURN
NI 83 GOSUB 51:GOSUB 57:RETURN
KT 84 GOSUB 52:GOSUB 53:RETURN
MJ 85 GOSUB 52:GOSUB 55:RETURN
OV 86 GOSUB 54:GOSUB 57:RETURN
OO 87 GOSUB 55:GOSUB 56:RETURN
PK 88 GOSUB 55:GOSUB 57:RETURN
NL 89 GOSUB 52:GOSUB 56:RETURN
EG 90 PM$(422,439)=Z$:RETURN
BA 95 SOUND 0,60,6,8:X=1^1^1^1:SOUND 0,0,
   0,0:RETURN
AZ 1000 PM$(1,440)=K$:FOR X=2 TO LEN(T$):
   POKE 20,0
PA 1010 IF T$(X-1,X)="  " THEN GOSUB 1100
   :NEXT X
JF 1020 IF T$(X,X)<>T$(X-1,X-1) THEN 1040
LD 1030 PM$(1,440)=K$:POKE 20,INT(D/2):GO
   SUB 32:POSITION 2,11:? #6;" ":GOSUB 11
   00:POKE 20,0
ZS 1040 PM$(1,440)=K$
SC 1050 GOSUB ASC(T$(X,X)):POSITION 2,11:
   ? #6;T$(X,X):GOSUB 1100:NEXT X:PM$(1,4
   40)=K$
NX 1060 GOSUB 32:POSITION 2,11:? #6;" ":D
   =D*3:GOSUB 1100
UC 1070 FOR X=120 TO 255:POKE 53251,X:POK
   E 53249,X:NEXT X:POKE 53277,0:GOTO 380
   0
QY 1100 IF PEEK(20)>D THEN RETURN
NG 1101 GOTO 1100
KE 2000 CLOSE #1:OPEN #1,4,0,"K:":T$=" ":
   GOTO 5000
RV 2010 POSITION 0,7:? #6;"  type a lett
   er":POSITION 0,9:? #6;" type 'esc' to
   quit"
VP 2020 GET #1,X:IF X=27 THEN 2100
BW 2030 T$=CHR$(X):IF T$<"A" OR T$>"Z" TH
   EN T$=" "
BO 2040 PM$(1,440)=K$:GOSUB ASC(T$):POSIT
   ION 2,11:? #6;T$:GOTO 2020
AK 2100 CLOSE #1:PM$(1,440)=K$:GOSUB 32:P
   OSITION 2,11:? #6;" ":FOR X=120 TO 255
   :POKE 53251,X:POKE 53249,X:NEXT X
CR 2110 POKE 53277,0
AF 3000 POKE 53248,255:POKE 53250,255:? "
   ▛↓            DO YOU WANT TO↓↓↓"
WE 3010 ? "1. SEND (TEXT VISIBLE)↓":? "2.
    SEND (TEXT NOT VISIBLE)↓":? "3. RECEI
   VE MESSAGE (TEXT VISIBLE)↓"
AC 3020 ? "4. RECEIVE MESSAGE (TEXT NOT V
   ISIBLE)↓"
ST 3030 ? "5. RECEIVE CODED GROUPS (TEXT
   VISIBLE)":? "6. RECEIVE CODED GROUPS (
   TEXT NOT            VISIBLE)↓"
```

continued on next page

```
ZR 3040 ? "7. QUIT":? "       CHOOSE AN OP
   TION (1 TO 7)";
FD 3050 CLOSE #1:OPEN #1,4,0,"K:":GET #1,
   X:CLOSE #1:OP=X-48:IF OP<1 OR OP>7 THE
   N GOSUB 95:GOTO 3000
SG 3060 IF OP=7 THEN GRAPHICS 0:END
UT 3070 T$="":IF OP<3 THEN 2000
ZQ 3500 ? "CHOOSE YOUR SPEED (WOR
   DS PER MINUTE)"
EP 3510 ? " 1=10  2=15  3=18  4=20  5
   =25  6=30":? "   CHOOSE AN OPTIO
   N (1 TO 6)";
FH 3520 CLOSE #1:OPEN #1,4,0,"K:":GET #1,
   X:CLOSE #1:X=X-48:IF X<1 OR X>6 THEN G
   OSUB 95:GOTO 3500
QB 3530 D=(X=1)*60+(X=2)*39+(X=3)*33+(X=4
   )*30+(X=5)*23+(X=6)*18:GRAPHICS 18:POS
   ITION 2,4
BZ 3540 ? #6;"  STAND BY . . .":FOR X=1 T
   O 500:NEXT X:IF OP>4 THEN 4000
SG 3550 EXNR=INT(RND(0)*10)+1:RESTORE 699
   0+10*EXNR:T$=" NRURNRURNRURNRURN    "
LA 3560 READ C:FOR CC=1 TO C:READ P$:T$(L
   EN(T$)+1)=" ":T$(LEN(T$)+1)=P$:NEXT CC
   :T$(LEN(T$)+1)=" AR":GOTO 5000
DH 3800 POKE 53248,255:POKE 53250,255:GRA
   PHICS 0
DG 3810 ? "            DO YOU WANT TO PRINT"
   :? "            THIS EXERCISE?"
GU 3820 ? "1. ON SCREEN":? "2. ON PRI
   NTER":? "3. NO PRINTOUT":? "     CHO
   OSE AN OPTION (1, 2, OR 3)";
WB 3830 CLOSE #1:OPEN #1,4,0,"K:":GET #1,
   X:CLOSE #1:IF X<49 OR X>51 THEN GOSUB
   95:GOTO 3830
NG 3840 ON X-48 GOTO 3850,3860,3000
BV 3850 CLOSE #1:OPEN #1,8,0,"E:":GOTO 38
   70
OL 3860 TRAP 3920:CLOSE #1:OPEN #1,8,0,"P
   :"
WI 3870 IF OP=5 OR OP=6 THEN 3890
DP 3880 ? #1;"EXERCISE NUMBER ";EXNR:? #1
   :? #1;T$(22):? #1:GOTO 3900
JQ 3890 FOR Y=24 TO 133 STEP 12:? #1;T$(Y
   ,Y+10):NEXT Y:? #1
RZ 3900 IF X=49 THEN ? #1;"PRESS ANY KEY
   TO CONTINUE":CLOSE #1:OPEN #1,4,0,"K:"
   :GET #1,X
MD 3910 CLOSE #1:GOTO 3000
UT 3920 CLOSE #1:TRAP 40000:? "
   OOPS - NO PRINTER":GOSUB 95:GOTO 38
   10
ON 4000 T$=" NRURNRURNRURNRURN     ":FOR X
   =1 TO 10:FOR Y=1 TO 5:T$(LEN(T$)+1)="
   "
NO 4010 T$(LEN(T$)+1)=CHR$(INT(RND(0)*26)
   +65):NEXT Y:T$(LEN(T$)+1)="   ":NEXT X:
   T$(LEN(T$)+1)="AR"
MQ 5000 GRAPHICS 18:V=PEEK(134)+PEEK(135)
   *256:A=PEEK(140)+PEEK(141)*256
IP 5010 POKE 708,12*(OP=1 OR OP=3 OR OP=5
   )
LU 5020 X=PB+384-A:H=INT(X/256):L=X-H*256
   :POKE V+2,L:POKE V+3,H
ZZ 5030 PM$(1,440)=K$:PM$(441,539)=K$:PM$
   (576,640)=K$:PM$(540,575)=M$:GOSUB 32
WF 5040 POKE 559,46:POKE 53277,3:POKE 704
   ,12:POKE 705,12:POKE 706,12:POKE 707,2
   12
QD 5050 POKE 53248,104:POKE 53249,20:POKE
    53250,136:POKE 53251,20:POKE 53256,1:
   POKE 53257,1:POKE 53258,1
PS 5060 POKE 53259,1:FOR X=20 TO 120:POKE
    53249,X:POKE 53251,X:NEXT X
EG 5070 IF OP<3 THEN 2010
NQ 5080 GOTO 1000
ZF 6000 CLR :DIM PM$(640),A$(16),B$(8),C$
   (16),DR$(24),DL$(24),E$(16),F$(8),G$(1
   6),SR$(14),SL$(14),S$(14),K$(440)
MO 6010 DIM M$(36),H$(18),Z$(18),P$(114),
   T$(1000):PM$(1)=CHR$(0):PM$(640)=CHR$(
   0):PM$(2)=PM$:K$=PM$
OJ 6020 GRAPHICS 18:? #6:? #6:? #6:? #6;"
      SEMAPHORE":? #6:? #6;"     EXERCI
   SE":? #6;"       PROGRAM"
IJ 6030 PP=PEEK(740)-16:POKE 106,PP:POKE
   54279,PP:PB=256*PP
XE 6100 FOR X=1 TO 15 STEP 2:READ Y:A$(X,
   X)=CHR$(Y):A$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 1,2,4,8,240,240,240,240
PW 6110 FOR X=1 TO 7 STEP 2:READ Y:B$(X,X
   )=CHR$(Y):B$(X+1,X+1)=CHR$(Y):NEXT X:D
   ATA 255,240,240,240
ZA 6120 FOR X=1 TO 15 STEP 2:READ Y:C$(X,
   X)=CHR$(Y):C$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 240,240,240,240,8,4,2,1
CB 6130 FOR X=1 TO 23 STEP 2:READ Y:DR$(X
   ,X)=CHR$(Y):DR$(X+1,X+1)=CHR$(Y):NEXT
   X
AN 6131 DATA 240,240,240,240,128,128,128,
   128,128,128,128,128
ME 6140 FOR X=1 TO 23 STEP 2:READ Y:DL$(X
   ,X)=CHR$(Y):DL$(X+1,X+1)=CHR$(Y):NEXT
   X:DATA 15,15,15,15,1,1,1,1,1,1,1,1
KR 6150 FOR X=1 TO 15 STEP 2:READ Y:E$(X,
   X)=CHR$(Y):E$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 15,15,15,15,16,32,64,128
CI 6160 FOR X=1 TO 7 STEP 2:READ Y:F$(X,X
   )=CHR$(Y):F$(X+1,X+1)=CHR$(Y):NEXT X:D
   ATA 255,15,15,15
LY 6170 FOR X=1 TO 15 STEP 2:READ Y:G$(X,
   X)=CHR$(Y):G$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 128,64,32,16,15,15,15,15
YF 6180 FOR X=1 TO 13 STEP 2:READ Y:SR$(X
   ,X)=CHR$(Y):SR$(X+1,X+1)=CHR$(Y):NEXT
   X:DATA 64,32,16,60,60,60,60
JX 6190 FOR X=1 TO 13 STEP 2:READ Y:SL$(X
   ,X)=CHR$(Y):SL$(X+1,X+1)=CHR$(Y):NEXT
   X:DATA 2,4,8,60,60,60,60
BZ 6200 FOR X=1 TO 13 STEP 2:READ Y:S$(X,
   X)=CHR$(Y):S$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 66,36,24,60,60,60,60
WF 6210 FOR X=1 TO 35 STEP 2:READ Y:M$(X,
   X)=CHR$(Y):M$(X+1,X+1)=CHR$(Y):NEXT X
PT 6211 DATA 60,90,102,60,24,255,126,126,
   126,126,126,102,102,102,102,102,102,10
   2
GG 6220 FOR X=1 TO 17 STEP 2:READ Y:H$(X,
   X)=CHR$(Y):H$(X+1,X+1)=CHR$(Y):NEXT X
DO 6221 DATA 255,241,242,244,8,240,240,24
   0,240
UJ 6230 FOR X=1 TO 17 STEP 2:READ Y:Z$(X,
   X)=CHR$(Y):Z$(X+1,X+1)=CHR$(Y):NEXT X:
   DATA 255,143,79,47,16,15,15,15,15
OF 6240 GOTO 3000
IZ 7000 DATA 2,THE QUALITY OF MERCY IS NO
   T STRAINED MIM IT DROPPETH AS THE GENT
   LE RAIN FROM HEAVEN
YF 7001 DATA UPON THE PLACE BENEATH AAA I
   T IS TWICE BLESSED OS IT BLESSETH HIM
   THAT GIVES AND HIM THAT TAKES AAA
PK 7010 DATA 2,FRIENDS MIM ROMANS MIM COU
   NTRYMEN MIM LEND ME YOUR EARS OS I COM
   E TO BURY CAESAR MIM NOT TO
XF 7011 DATA PRAISE HIM AAA THE EVIL THAT
    MEN DO LIVES AFTER THEM MIM THE GOOD
   IS OFT INTERRED WITH THEIR BONES AAA
XA 7020 DATA 3,DOUBLE MIM DOUBLE TOIL AND
    TROUBLE OS FIRE MIM BURN MIM AND CALD
   RON MIM BUBBLE AAA
JO 7021 DATA FILLET OF A FENNY SNAKE MIM
   IN THE CALDRON BOIL AND BAKE AAA EYE O
   F NEWT MIM AND TOE OF FROG MIM
QU 7022 DATA WOOL OF BAT MIM AND TONGUE O
   F DOG AAA
PQ 7030 DATA 3,BUT MIM SOFT MIM WHAT LIGH
   T THROUGH YONDER WINDOW BREAKS IMI IT
   IS THE EAST MIM
CZ 7031 DATA AND JULIET IS THE SUN AAA AR
   ISE MIM FAIR SUN MIM AND KILL THE ENVI
   OUS MOON MIM
OI 7032 DATA WHO IS ALREADY SICK AND PALE
    WITH GRIEF MIM THAT THOU HER MAID ART
    FAR MORE FAIR THAN SHE AAA
SV 7040 DATA 2,OH MIM THAT THIS TOO TOO S
   OLID FLESH WOULD MELT MIM THAW MIM AND
    RESOLVE ITSELF INTO A DEW AAA
ID 7041 DATA OR THAT THE EVERLASTING HAD
   NOT FIXED HIS CANON GAINST SELF DU SLA
   UGHTER AAA
JF 7050 DATA 3,TO BE MIM OR NOT TO BE MIM
    THAT IS THE QUESTION AAA WHETHER TIS
   NOBLER IN THE MIND TO SUFFER
WV 7051 DATA THE SLINGS AND ARROWS OF OUT
   RAGEOUS FORTUNE MIM OR TO TAKE ARMS AG
   AINST A SEA OF TROUBLES MIM
YN 7052 DATA AND BY OPPOSING MIM END THEM
    AAA
MC 7060 DATA 2,ALAS MIM POOR YORICK AAA I
    KNEW HIM MIM HORATIO OS A FELLOW OF I
   NFINITE JEST MIM OF MOST
PY 7061 DATA EXCELLENT FANCY AAA HE HATH
   BORNE ME ON HIS BACK A THOUSAND TIMES
   AAA
```

```
YT 7070 DATA 2,IF WE SHADOWS HAVE OFFENDE
   D MIM THINK BUT THIS MIM AND ALL IS ME
   NDED MIM
UR 7071 DATA THAT YOU HAVE BUT SLUMBERED
   HERE WHILE THESE VISIONS DID APPEAR AA
   A
QW 7080 DATA 2,IF YOU PRICK US MIM DO WE
   NOT BLEED IMI IF YOU TICKLE US MIM DO
   WE NOT LAUGH IMI
NJ 7081 DATA IF YOU POISON US MIM DO WE N
   OT DIE IMI AND IF YOU WRONG US MIM SHA
   LL WE NOT REVENGE IMI
TQ 7090 DATA 5,WE SHALL NOT FLAG OR FAIL
   AAA WE SHALL GO ON TO THE END AAA WE S
   HALL FIGHT IN FRANCE MIM WE SHALL
JU 7091 DATA FIGHT ON THE SEAS AND OCEANS
    MIM WE SHALL FIGHT WITH GROWING CONFI
   DENCE AND GROWING STRENGTH
ET 7092 DATA IN THE AIR MIM WE SHALL DEFE
   ND OUR ISLAND MIM WHATEVER THE COST MA
   Y BE MIM WE SHALL FIGHT
DU 7093 DATA ON THE BEACHES MIM WE SHALL
   FIGHT ON THE LANDING GROUNDS MIM WE SH
   ALL FIGHT IN THE FIELDS
AM 7094 DATA AND IN THE STREETS MIM WE SH
   ALL FIGHT IN THE HILLS AAA WE SHALL NE
   VER SURRENDER AAA
```

NEWSROOM CONVERTER

Article on page 34

LISTING 1

Don't type the TYPO II Codes!

```
EV 1 REM THE NEWSROOM CONVERTER
CO 2 REM BY JOHN FRENCH
QR 3 REM (c)1988, ANTIC PUBLISHING
HA 10 DIM SEC$(129),DIR$(32),HDR1$(14),HD
   R2$(14),HDR3$(14),NAME$(20),ML$(40),PA
   TH$(8)
IB 15 HDR1$="▶▶♥█C█<□♥3◢_♥▶"
UW 16 HDR2$="▶▶♥█▶Sx╫♥g◢_♥▶"
WB 17 HDR3$="▶▶♥█┐3◢╫♥█◢o♥▶"
FC 18 ML$="hh┐Lh┐Kh┐Mh✱SM1KI▶┌K◢╫W◢K╩i(┐K
   ◢Li♥┐LJPe◆"
NC 20 GRAPHICS 0:PATH$="D1:*.*":POKE 710,
   0:POKE 675,0:POKE 676,129
TY 21 ? "▶┌━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━┐"
UA 22 ? "▶▌█████████████The██████████████▐"
VJ 23 ? "▶▌████Newsroom Converter████▐"
RW 24 ? "▶▌███████by John French██████▐"
BD 25 ? "▶▌███████████████████████████▐"
GK 26 ? "▶▌(c)1988 Antic Publishing▐"
UQ 27 ? "▶└━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━┘"
GT 30 ? "♥♥[1] GR.8 File to Newsroom"
WT 40 ? :? "[2] Print Shop to Newsroom"
YN 50 ? :? "[3] Newsroom to GR.8 File"
AI 60 ? :? "[4] Quit"
QL 70 POKE 752,0:POSITION 2,20:? "▶Your C
   hoice: ";:CLOSE #2:OPEN #2,4,0,"K:":GE
   T #2,K:CLOSE #2
WE 80 POKE 752,1:? CHR$(K):K=K-48:IF K<1
   OR K>4 THEN POKE 712,66:K=2^2:POKE 712
   ,0:GOTO 70
QN 90 ON K GOTO 200,300,400,100
KG 100 GRAPHICS 0:END
XK 199 REM GR.8 -> NEWSROOM
CH 200 GRAPHICS 0:POKE 710,0:GOSUB 1000
VN 210 ? :? :? "GR.8 File to Load - D1:";
   :INPUT #16,NAME$
SX 220 IF NAME$="" THEN 20
BU 221 DIR$="D1:":DIR$(LEN(DIR$)+1)=NAME$
QK 225 TRAP 250:CLOSE #1:OPEN #1,4,0,DIR$
ZG 230 GRAPHICS 8+16:POKE 710,12:POKE 709
   ,0:LO=PEEK(88):HI=PEEK(89)
YM 240 CMD=7:AL=LO:AH=HI:LL=0:LH=30:GOSUB
    2000
CZ 245 CLOSE #1:GOTO 260
SN 250 CLOSE #1:GOSUB 5000:ON K GOTO 200,
   20
BO 260 GOSUB 3000:GRAPHICS 8+32
SP 270 POKE 710,0:? "▶NEWSROOM Filename t
   o Save - D1:PH";:INPUT #16,NAME$
TJ 280 IF NAME$="" THEN 20
SD 290 DIR$="D1:PH":DIR$(LEN(DIR$)+1)=NAM
   E$
AQ 291 TRAP 298:CLOSE #1:OPEN #1,8,0,DIR$
UR 292 ? #1;HDR3$;
VH 293 CMD=11:AL=LO:AH=HI:LL=29:LH=0:AL=A
   L+X
WY 294 IF AL>255 THEN AL=AL-256:AH=AH+1
WB 295 FOR I=0 TO 167:GOSUB 2000:IF PEEK(
   851)<>1 THEN POKE 195,PEEK(851):GOTO 2
   98
QB 296 AL=AL+40:IF AL>255 THEN AL=AL-256:
   AH=AH+1
HE 297 NEXT I:CLOSE #1:GOTO 20
DL 298 CLOSE #1:GOSUB 5000:ON K GOTO 270,
   20
YJ 299 REM PRINT SHOP -> NEWSROOM
EI 300 GRAPHICS 0:POKE 710,0:? "♥♥Load Pr
   int Shop Data Disk in Drive":? :? "
    █Press [RETURN]";
LV 310 INPUT #16;NAME$:? :? :SEC=362:P=1
RV 320 GOSUB 4000
RY 330 FOR I=1 TO 97 STEP 32:DIR$=SEC$(I,
   I+31)
DM 340 IF DIR$="♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   ♥♥♥♥♥♥♥♥" THEN POP :GOTO 350
AC 345 ? P;" - ";DIR$(1,16):P=P+1:NEXT I:
   SEC=SEC+1:GOTO 320
XG 350 ? :? "Your Choice";:TRAP 350:INPUT
    N
LC 351 IF N=0 THEN 20
DD 355 IF N<1 OR N>=P THEN 350
GI 360 P=INT((N-1)/4):I=(N-(P*4)-1)*32+1
EB 370 SEC=362+P:GOSUB 4000:DIR$=SEC$(I,I
   +31)
FG 371 GRAPHICS 8:POKE 710,0:LO=PEEK(88):
   HI=PEEK(89):PIC=LO+HI*256:? "Loading "
   ;DIR$(1,16)
XK 372 SEC=ASC(DIR$(17,17))+ASC(DIR$(18,1
   8))*256:P=0:S=1:L=1:GOSUB 4000
DF 373 POKE PIC+P,ASC(SEC$(S,S)):S=S+1:IF
    S>126 THEN S=1:SEC=SEC+1:GOSUB 4000
ZV 374 P=P+1:IF P>10 THEN P=0:L=L+1:PIC=P
   IC+40
TE 375 IF L<53 THEN 373
CT 376 W=10:H=52:GOSUB 3500
RD 377 ? "▶NEWSROOM Filename to Save - D1
   :PH";:INPUT #16,NAME$:IF NAME$="" THEN
    20
SY 378 DIR$="D1:PH":DIR$(LEN(DIR$)+1)=NAM
   E$
RJ 379 ? :? :? "Double Height (Y/N)";:INP
   UT NAME$:DH=1:IF NAME$(1,1)="Y" THEN D
   H=2
XE 380 TRAP 390:CLOSE #1:OPEN #1,8,0,DIR$
HS 381 IF DH=1 THEN ? #1;HDR1$;:GOTO 383
UD 382 ? #1;HDR2$;
WH 383 CMD=11:AL=LO:AH=HI:LL=11:LH=0
JS 384 FOR I=1 TO 52:FOR D=1 TO DH:GOSUB
   2000:IF PEEK(851)<>1 THEN POKE 195,PEE
   K(851):POP :POP :GOTO 390
SM 385 NEXT D:AL=AL+40:IF AL>255 THEN AL=
   AL-256:AH=AH+1
HA 386 NEXT I:CLOSE #1:GOTO 20
CZ 390 GOSUB 5000:ON K GOTO 377,20
YK 399 REM NEWSROOM -> GR.8
PR 400 ? "▶":PATH$="D1:PH*.*":GOSUB 1000:
   ? "NEWSROOM Filename to Load - D1:PH";
   :INPUT #16,NAME$
SX 410 IF NAME$="" THEN 20
RR 420 DIR$="D1:PH":DIR$(LEN(DIR$)+1)=NAM
   E$
PM 430 TRAP 500:CLOSE #1:OPEN #1,4,0,DIR$
   :GRAPHICS 8+16:POKE 710,0
ZN 435 LO=PEEK(88):HI=PEEK(89)
EL 440 FOR I=1 TO 7:GET #1,JNK:NEXT I:GET
    #1,XHI:FOR I=9 TO 14:GET #1,JNK:NEXT
   I:DH=INT(XHI/2)
HX 441 LPRINT "DH=";DH
DD 450 CMD=7:AL=LO:AH=HI:LL=29:LH=0:AL=AL
   +6
```

continued on next page

```
WI 460 IF AL>255 THEN AL=AL-256:AH=AH+1
VX 462 IF DH>2 THEN 470
HQ 463 LL=11:LH=0
QB 464 FOR I=1 TO 52:FOR D=1 TO DH:GOSUB
   2000:IF PEEK(851)>5 THEN POKE 195,PEEK
   (851):POP :POP :GOTO 500
IB 465 NEXT D:GOTO 480
OH 470 FOR I=0 TO 167:GOSUB 2000:IF PEEK(
   851)>5 THEN POKE 195,PEEK(851):GOTO 50
   0
PJ 480 AL=AL+40:IF AL>255 THEN AL=AL-256:
   AH=AH+1
KE 490 NEXT I:CLOSE #1:GOTO 510
UY 500 CLOSE #1:GOSUB 5000:ON K GOTO 400,
   20
LP 510 GRAPHICS 8+32:POKE 710,0
MM 520 ? :? :? "GR.8 File to Save - D1:";
   :INPUT #16,NAME$
TC 530 IF NAME$="" THEN 20
BY 540 DIR$="D1:":DIR$(LEN(DIR$)+1)=NAME$

XU 550 TRAP 590:CLOSE #1:OPEN #1,8,0,DIR$

QN 560 GRAPHICS 8+48:POKE 710,0
VA 570 CMD=11:AL=LO:AH=HI:LL=0:LH=30:GOSU
   B 2000
BD 580 CLOSE #1:GOTO 600
YJ 590 CLOSE #1:GOSUB 5000:ON K GOTO 510,
   20
PR 600 GOTO 20
PR 999 END
TF 1000 REM DOS DIRECTORY
OD 1005 TRAP 1050
BK 1010 CLOSE #1:OPEN #1,6,0,PATH$:?
NC 1020 TRAP 1040
BG 1030 INPUT #1,DIR$:? DIR$:GOTO 1030
MS 1040 CLOSE #1:TRAP 40000:RETURN
NX 1050 CLOSE #1:GOSUB 5000:ON K GOTO 100
   0
QT 1060 POP :GOTO 20
LH 1999 REM LOAD DOS FILE
NX 2000 POKE 850,CMD:POKE 852,AL:POKE 853
   ,AH:POKE 856,LL:POKE 857,LH
PY 2010 A=USR(ADR("hhh⊠LV◘"),16)
AG 2020 RETURN
FB 3000 X=0:W=0:H=168:CLOSE #2:OPEN #2,4,
   0,"K:":GOSUB 3400
CO 3005 GRAPHICS 8+32:POKE 710,12:POKE 70
   9,2:? "◙◙Use ◙◙ & ◙◙ to Frame Picture"

OO 3006 ? "   Press █RETURN█ to Save"
QR 3007 GET #2,K:GRAPHICS 8+48:POKE 710,1
   2:POKE 709,2:GOTO 3020
BD 3010 GET #2,K:IF K=43 OR K=42 THEN K=7
   3-K
KV 3020 IF K=31 AND X<11 THEN GOSUB 3400:
   X=X+1:GOSUB 3400:GOTO 3010
DE 3030 IF K=30 AND X>0 THEN GOSUB 3400:X
   =X-1:GOSUB 3400:GOTO 3010
SD 3040 IF K=155 THEN CLOSE #2:GOTO 3060
OO 3050 GOTO 3010
BC 3060 W=26:X=X+1:GOSUB 3500:X=X-1
AW 3070 RETURN
IK 3400 GOSUB 3500:OX=X:X=X+28:GOSUB 3500
   :X=OX:RETURN
UY 3500 PIC=LO+HI*256+X
KZ 3510 SZ=W*256+H
FV 3520 A=USR(ADR(ML$),PIC,SZ)
AU 3530 RETURN
JK 4000 SEC$(129)="◙":AH=INT(ADR(SEC$)/25
   6):AL=ADR(SEC$)-AH*256:SH=INT(SEC/256)
   :SL=SEC-SH*256
WA 4010 POKE 772,AL:POKE 773,AH:POKE 778,
   SL:POKE 779,SH:POKE 769,1:POKE 770,82
MO 4020 A=USR(ADR("h S◘◙"))
AU 4030 IF PEEK(771)=1 THEN RETURN
JW 4040 POKE 195,PEEK(771):GOSUB 5000
KE 4050 POP :ON K GOTO 300,20
OQ 5000 POKE 712,66:? "◙◙Error - ";PEEK(1
   95);"◙"
EJ 5010 ? :? "█1█ Retry  █2█ Cancel  ";
BR 5030 CLOSE #1:CLOSE #2:OPEN #2,4,0,"K:
   ":GET #2,K:CLOSE #2
XQ 5040 IF K<49 OR K>50 THEN 5030
BJ 5050 POKE 712,0:K=K-48:RETURN
```

LISTING 2

```
FN 10 REM THE NEWSROOM CONVERTER, LISTING
   2
CK 20 REM BY JOHN FRENCH
QH 30 REM (c)1988, ANTIC PUBLISHING
RC 35 REM CREATES LINES 15-18
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
YH 80 ? "◙Press any key to begin...";:POK
   E 764,255
VV 90 IF PEEK(764)=255 THEN 90
WH 100 POKE 764,255
OK 110 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")    "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "◙TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "◙TOO FEW DATA
   LINES!":? "CANNOT CREATE FILE!":END
LC 220 CLOSE #1
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
II 1000 DATA 128
CB 1010 DATA 0490530320720680820490360610
   3425525500016006716206000200005100809
   5
   000255034155049054032072068
EE 1020 DATA 0820500360610342552550001601
   27164120004000103008095000255034155049
   055032072068082051036061034
WG 1030 DATA 2552550001600151790080190001
   670082390002550341550490560320770760
   36
   061034104104133204104133203
WD 1040 DATA 1041332051041701642051772030
   73255145203136016247165203024105040133
   203165204105000133204202208
TV 1050 DATA 229096034155
```

XG-1 LIGHT GUN

Article on page 31

LISTING 1

Don't type the TYPO II Codes!

```
JS 5 REM LIGHT GUN DETECTOR
TU 6 REM BY MATTHEW RATCLIFF
QV 7 REM (c)1988, ANTIC PUBLISHING
ZX 10 GRAPHICS 0:POKE 752,1:POKE 710,10:P
   OKE 709,0
CS 20 LPENH=564:LPENV=565
DJ 30 FOR I=0 TO 3
KN 40 A=STICK(I)
ID 50 IF (A=14) THEN 90
IU 60 NEXT I
AD 70 POSITION 2,2:? "No Light gun!":GOTO
   30
GZ 90 POSITION 2,2:? "GUN ON PORT ";I
XV 100 X=PEEK(LPENH)
GS 110 Y=PEEK(LPENV)
QU 120 A=STICK(I)
KP 130 POSITION 2,4:? "GUNX=";X;"  "
NH 140 POSITION 2,5:? "GUNY=";Y;"  "
KZ 150 POSITION 2,6
PY 160 IF (A=15) THEN ? "FIRE!":GOTO 100
US 170 ? "....."
LW 180 GOTO 100
```

LISTING 2

```
0100 ; LIGHT GUN DETECTOR
0110 ; BY MATTHEW RATCLIFF
0120 ; (c)1988, ANTIC PUBLISHING
0130     *=  $5000
0140     .OPT OBJ
0150 ;
0160 LPENH = 564
0170 LPENV = 565
0180 STICK0 = 632
0190 GUNHERE = 14     ; Reading on port
                        with gun
0200 GUNFIRE = 15     ; Gunport=15 when
                        trigger pressed
0210 GUNPORT = $0600 ; Store gun port
                        index here
0220 ;
0230 ; GUNDET -Look for the light gun
0240 ; don't return until found.
0250 ; When found, return the port
0260 ; number of the gun in the
0270 ; X register, and put it
0280 ; in the GUNPORT memory location
0290 ; NOTE:
0300 ; Detect LOW to HIGH on joystick
0310 ; ports since the OS on XL/XE's
0320 ; copy ports 0 & 1 to 2 & 3.
0330 ; On 400/800, any port 0-3
0340 ; is valid for gun.
0350 ;
0360 GUNDET
0370     LDX #0       ; First port
0380 WAIT
0390     LDA STICK0,X
0400     CMP #GUNHERE
0410     BEQ GUNFOUND
0420 ;
0430     INX
0440     CPX #3
0450     BNE WAIT
0460 ;
0470     BEQ GUNDET
0480 ;
0490 GUNFOUND
0500     STX GUNPORT
0510     RTS
0520 ;
0530 ; GUNREAD - A successful GUNDET
0540 ; is assumed, and GUNPORT RAM
0550 ; register is set to the proper
0560 ; joystick port for reading
0570 ; the light gun.
0580 ;
0590 ; On Exit:
0600 ; X = LPENH
0610 ; Y = LPENV
0620 ; A = STICK(GUNPORT)
0630 ; Zero flag is SET if the
0640 ; trigger is being pressed.
0650 ;
0660 GUNREAD
0670     LDX GUNPORT
0680     LDA STICK0,X
0690     LDX LPENH
0700     LDY LPENV
0710     CMP #GUNFIRE
0720     RTS
0730 ;
0740 ; A simple test routine
0750 ; to use from DDT.
0760 ; The first BRK occurs after
0770 ; the gun is detected.
0780 ; At this BRK inspect
0790 ; the X register for the proper
0800 ; port number. Continue program
0810 ; from there. The next break
0820 ; occurs when the trigger is
0830 ; pressed.
0840 ;
0850     *=  $6000
0860 GUNTEST
0870     JSR GUNDET
0880     BRK
0890 ;
0900 SHOOTEMUP
0910     JSR GUNREAD
0920     BNE SHOOTEMUP
0930 ;   BRK
0940     BRK
```

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Tech Tips

PRINT SHOP DIRECTORY

This list by Harvey Daye of Franklin, Ohio is a useful directory of correct byte checks when reading Print Shop data disks (sectors 362-393):

Byte #	Value	Type
1,2,3	42 4F 2E	Border
1,2,3	46 4F 2E	Font
1,2,3	43 4C 2E	Calendar
22	02	Graphic icon
22	02	Creature maker
22	02	Tile magic
22	1E	Screen magic

The Byte # refers to the 32-byte directory listing for each entry on the data disk. The Value is in hexadecimal format as it appears on the the disk. Use an ATASCII/decimal conversion chart to convert the information for the routine you are using. Graphic icons, Creature Maker and Tile Magic all save in the same form and are all usable as icons from Print Shop and Print Shop Companion.

Below is Daye's routine for reading Print Shop directory entries. It won't crash on disks formatted with Percom or other drives that write a "1A" instead of a 0 when formatting a disk.

```
100 DIM SR$(55),S$(128),T$(15)
200 REM LINE 1950 FROM ICONVERTER OR LINE 2650 FROM DESIGNER LABELS
300 X=USR(ADR(SR$),ADR(S$),361,1,3):IF S$(1,15)<>"PRINT SHOP:CLK!" THEN END:REM GOTO YOUR ERROR TRAP ROUTINE
600 ? "↑":POSITION 5,12:? "Reading Print Shop Directory!"
700 FOR SECTR=362 TO 393:X=USR(ADR(SR$),ADR(S$),SECTR,1,3)
800 FOR X=1 TO 128 STEP 32
900 IF ASC(S$(X,X))=0 OR ASC(S$(X,X))=26 THEN 1500
1000 IF S$(X,X+2)="CL." THEN T$="CALENDAR":REM YOUR TEXT FORMATTING ROUTINE GOES HERE
1100 IF ASC(S$(X+21,X+21))="2" THEN T$="GRAPHIC ICON":REM YOUR TEXT FORMATTING ROUTINE GOES HERE
1200 IF ASC(S$(X+21,X+21))=30 THEN T$="SCREEN MAGIC":REM YOUR TEXT FORMATTING ROUTINE GOES HERE
1300 IF S$(X,X+2)="BO." THEN T$="BORDER":REM YOUR TEXT FORMATTING ROUTINE GOES HERE
1400 IF S$(X,X+2)="FO." THEN T$="FONT":REM YOUR TEXT FORMATTING ROUTINE GOES HERE
1500 NEXT X:NEXT SECTR
```

WORLD'S SHORTEST BANNER PROGRAM

Big Printer is a quick little program that prints banners. The author, Joseph Evans, lives in Waretown, New Jersey.

```
10 DIM M$(128),BIN(7)
20 FOR I=0 TO 7:BIN(I)=2±I:NEXT I
30 SC=PEEK(88)+256*PEEK(89)
40 CS=PEEK(756)*256
50 OPEN #1,4,0,"K:"
60 PRINT CHR$(125)
70 POSITION 11,0:PRINT "***BIG PRINTER***"
80 POSITION 2,2:PRINT "PLEASE ENTER YOUR MESSAGE."
90 PRINT "USE NO MORE THAN 128 CHARACTERS"
100 PRINT "AND DO NOT USE COMMAS."
110 PRINT :PRINT "MESSAGE";:INPUT M$
120 IF M$="" THEN 110
130 PRINT :PRINT "PRESS A NUMBER KEY TO SELECT"
140 PRINT "PRINT SIZE: (0=SMALL ; 9=LARGE)";
150 GET #1,SZ:SZ=SZ-47:IF SZ<1 OR SZ>10 THEN 150
160 PRINT " ";SZ-1:PRINT :PRINT
170 PRINT "TURN ON YOUR PRINTER AND PRESS"
180 PRINT "ANY KEY WHEN READY.";
190 GET #1,K:POKE 752,1:OPEN #2,8,0,"P:"
200 PRINT CHR$(125):POSITION 14,10:PRINT "PRINTING"
210 FOR CHAR=1 TO LEN(M$):POSITION 24,10:PRINT M$(CHAR,CHAR);
220 MAP=PEEK(SC+424)*8+CS
230 FOR BIT=7 TO 0 STEP -1
240 FOR DEPTH=1 TO SZ/2
250 FOR BYTE=7 TO 0 STEP -1
260 SET=INT(PEEK(MAP+BYTE)/BIN(BIT)):SET=INT(SET/2)<>SET/2
270 FOR LNGTH=1 TO SZ
280 PRINT #2;CHR$(32+SET*10);
290 NEXT LNGTH:NEXT BYTE:PRINT #2:NEXT DEPTH:NEXT BIT:NEXT CHAR
300 CLOSE #1:POKE 752,0:GOTO 60
```

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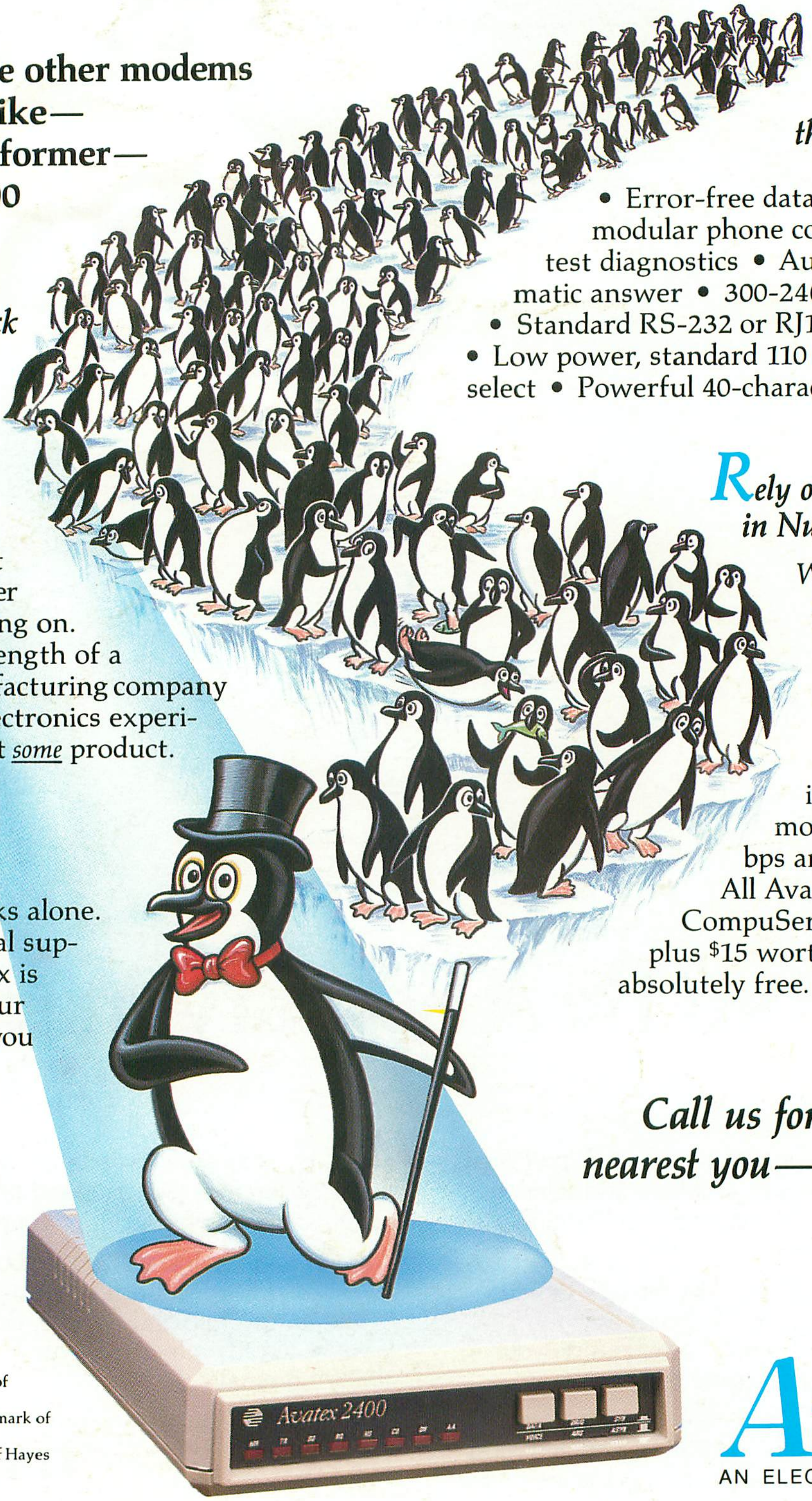
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